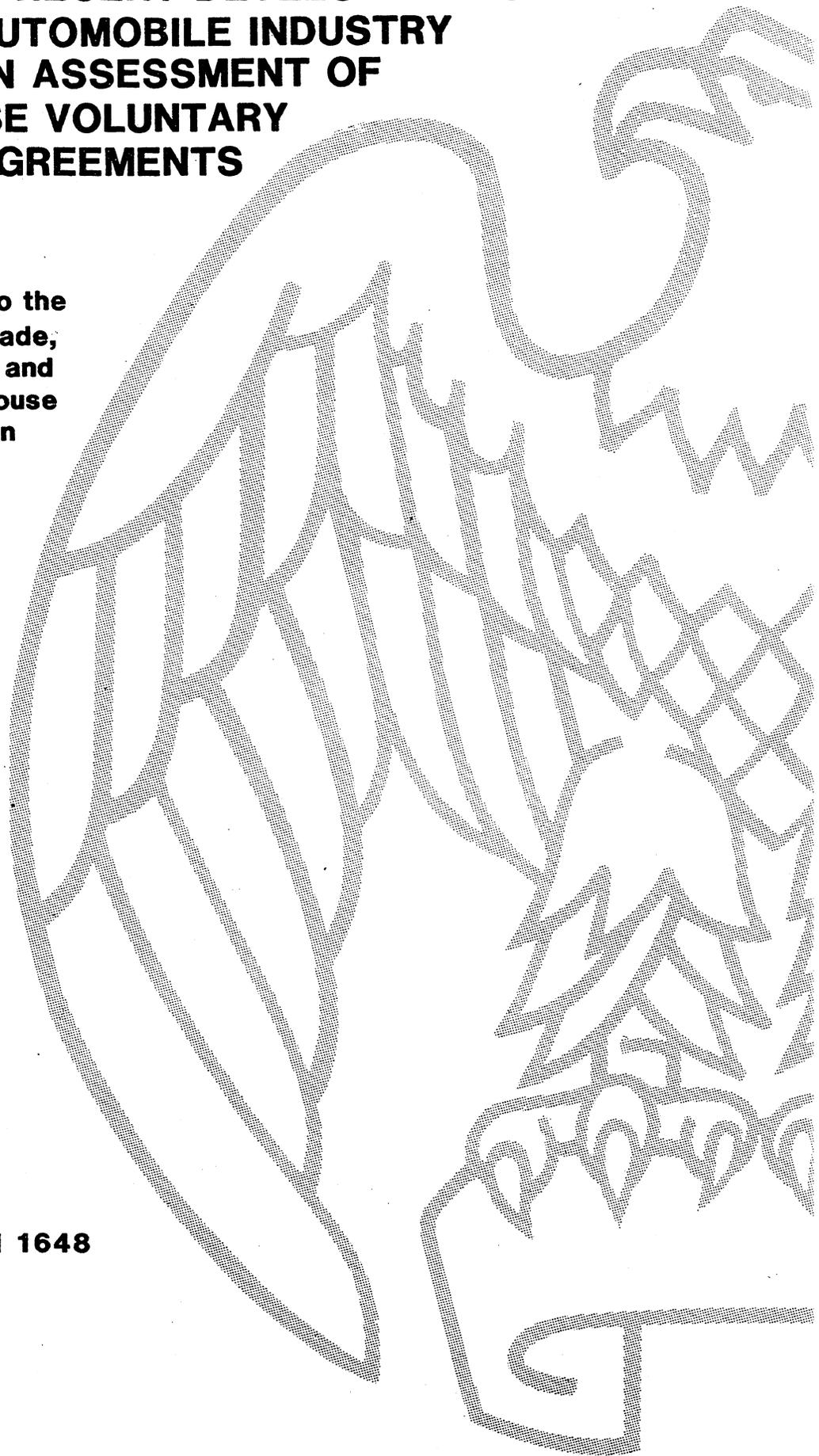


A REVIEW OF RECENT DEVELOPMENTS IN THE U.S. AUTOMOBILE INDUSTRY INCLUDING AN ASSESSMENT OF THE JAPANESE VOLUNTARY RESTRAINT AGREEMENTS

**Preliminary Report to the
Subcommittee on Trade,
Committee on Ways and
Means, of the U.S. House
of Representatives in
Connection With
Investigation
No. 332-188**

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Preface

This paper was prepared in response to a request by the Subcommittee on Trade of the Ways and Means Committee of the U.S. House of Representatives for information to assist in future decisions regarding any extension of the automobile voluntary restraint agreement (VRA) with Japan. In its request, dated December 11, 1984 (see app. A for a copy of the requesting letter), the Subcommittee specifically asked that the Commission expedite investigation No. 332-188, the Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry, which is currently in progress; however, because of the comprehensive coverage of ongoing investigation No. 332-188, the Commission could not expedite completion of the formal section 332 report. Since the Subcommittee's primary interest was the impact of the VRA on the U.S. industry, the Commission agreed, instead, to provide this preliminary analysis of the VRA's impact. A more comprehensive treatment of this subject will be provided in the Commission's report on investigation No. 332-188 to be published in April or May 1985. 1/

Many developments influenced the U.S. automobile industry during 1981-84, including changes in consumer demand, fluctuations in gasoline prices, and increasing development of joint venture arrangements between U.S. and foreign auto companies. The effect on the domestic auto industry of any one of these developments is not easily isolated. However, of the factors influencing the industry during this period, the principal events were the initiation of the VRA with Japan, that became effective on April 1, 1981, and the development of smaller automobiles (downsizing) by U.S. manufacturers that were designed to compete with such cars imported from Japan. This paper reviews developments in the U.S. automobile industry in recent years and attempts to quantify the effects of the VRA on the U.S. automobile industry, employment, and consumers during 1981-84. The analysis by the staff of the U.S. International Trade Commission for this paper drew on the results of recent economic research by Data Resources, Inc. (DRI) and other independent economic analyses.

1/ Commission Rohr did not participate in this investigation.

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EXECUTIVE SUMMARY

During 1979-80, a significant shift occurred in the domestic and foreign shares of the U.S. auto market. Sales of domestic autos in the United States fell 21 percent from 8.0 million units in 1979 to 6.3 million units in 1980, beginning a four year downward trend. Employment followed, dropping from 929,000 workers in 1979, to 740,000 in 1980, or by 20.3 percent. Sales of autos imported from Japan, conversely, rose to 1.88 million units in 1980 from 1.75 million units in 1979. As a result of these developments, the U.S. auto industry began to implement a number of measures to improve U.S. sales and to recapture the market share lost to imports. These measures included retooling and redesigning existing production and assembly facilities, building new facilities, downsizing most autos (model lines), increasing productivity, cutting fixed and variable costs, using less expensive and lighter materials, and using computer-aided design and manufacturing techniques.

On April 1, 1981, the Japanese began voluntarily restraining exports of autos to the United States to provide the U.S. auto industry with a period of time to make the necessary adjustments to become more competitive with imports. The Japanese renewed their voluntary restraints in each subsequent year through 1984. The most recent agreement is scheduled to expire on March 31, 1985, and, at the time of the transmittal of this paper, no decision has been announced by the Japanese regarding voluntary export restraints of autos to the United States during April 1, 1985-March 31, 1986.

The major highlights of this paper are provided below:

1. DEVELOPMENTS IN THE U.S. AUTOMOBILE INDUSTRY, 1979-84

- o U.S. auto production dropped from 8.4 million units in 1979 to 5.1 million units in 1982 but then rebounded to 7.8 million units in 1984.

Subcompact car production remained relatively constant during 1979-81 at about 1.5 million units, before dropping to 920,000 units in 1982, and then increasing to about 1.2 million in 1984. Production of compact models declined from 2.5 million in 1979 to 1.8 million in 1983, and then rose to almost 2.3 million in 1984. Standard and luxury car production declined from 2.2 million in 1979 to a low of 1.0 million in 1982, and then increased to 1.9 million in 1984.

After the rapid increase in the price of gasoline during 1979-80, consumers changed their purchases of mostly large autos to that of smaller, more fuel-efficient models. As the price of gasoline leveled and the general economy improved in late 1982, many consumers switched from smaller domestic models (subcompact and compact) to larger models (intermediate, standard, and luxury).

- o U.S. industry's capacity to produce autos declined between 1979 and 1984.

Capacity for the U.S. production of autos decreased from 10.1 million units in 1979 to 8.6 million in 1983 before rising to 9.0 million in 1984.

Capacity utilization in the United States, however, increased from 68 percent in 1981, the first year of the VRA, to almost 87 percent in 1984. The industry capacity declined, principally because of the permanent closings of many older, inefficient assembly plants, while other plants were temporarily shut down to facilitate retooling and renovation.

- o The U.S. auto industry employed 720,000 in 1984, down from 930,000 in 1979, but wage levels increased during the period.

Employment by the six domestic auto producers dropped each year during 1979 to 1982, from 930,000 to 623,000 employees, respectively. Employment rebounded by mid-1984 (according to the latest available data) by almost 100,000 employees; however, it is still almost 200,000 fewer employees from peak-year 1979 employment. Employment trends in the U.S. auto industry generally followed industry production trends, declining from 1979 to 1982, and then increasing in both 1983 and 1984. Average hourly wages increased from \$10.52 in 1979 to \$15.33 during January-June 1984, and gross earnings increased from \$18.7 billion in 1979 to an estimated \$22.6 billion in 1984.

- o The industry has dramatically reduced many of its fixed and variable costs since 1979, and in doing so has substantially reduced its breakeven level.

By cutting both the salaried and hourly work force, and at the same time increasing productivity, the auto industry has managed to substantially reduce labor costs. In addition to employee reductions, the industry has lowered inventory carrying costs, reorganized major divisions so that they are more efficient, closed many older plants, increased component outsourcing, and made significant gains in quality control.

Through major cost reductions, the 3 major U.S. automakers substantially lowered their breakeven points during 1979-84. General Motors' breakeven level, based on worldwide vehicle sales, has fallen from 8.4 million units in 1980 to about 5.6 million units in 1984; Ford's North American operations' breakeven point fell to 2.1 million units from 3.6 million units, and Chrysler's fell to 1.1 million units from 2.3 million units.

- o The Japanese enjoy an estimated \$1,000 to \$1,500 per auto cost advantage over U.S. producers.

There is a general consensus by auto analysts as to the existence of a production cost advantage in favor of Japanese producers; however, the estimates of the advantage range between \$200 and \$2,000 per unit. According to a comparison of the Ohio-built Honda and a similar Honda-built in Japan, the actual cost advantage of Japanese production is probably between \$1,000 to \$1,500 per auto. Most analysts attribute the cost advantage to such factors as lower wages and higher productivity of Japanese workers, better management, and the imbalance in currency valuations of the dollar and the yen.

- o The four U.S.-based auto producers reported combined losses on U.S. operations of \$4.7 billion in 1980, but it is estimated that they will post in excess of \$10 billion in profits in 1984.

Profits of the U.S. auto industry on U.S. operations jumped to \$5.3 billion in 1983 after losses of \$400 million in 1979, \$4.7 billion in 1980, \$2.3 billion in 1981, and \$553 million in 1982. It is estimated that profits in 1984 will exceed \$10 billion. During the period of the VRA, the 4 domestic auto companies registered total net profits of almost \$13.0 billion on their U.S. operations.

2. CHANGES IN THE U.S. MARKET DURING THE PERIOD OF THE VRA

- o U.S. consumption of autos dropped from 10.5 million units in 1979 to 7.6 million units in 1982 before rising to 10.7 million units in 1984.

U.S. consumption of automobiles generally followed the trend of the U.S. economy during 1979-84. U.S. consumption declined from 10.5 million units in 1979 to a low of 7.6 million units in 1982. As the U.S. economy began recovering in late 1982, consumption of new autos also increased, rising to 8.6 million in 1983 and 10.7 million in 1984.

While U.S. production and exports followed the trends of the U.S. economy, imports remained relatively stable during 1979-83. This caused an increase in the import-to-consumption ratio from 27.6 percent in 1979 to a high of 38.5 percent in 1982 (when U.S. production and exports were at their lowest levels). The imports-to-consumption ratio then declined in each succeeding year, dropping to 36.6 percent in 1983 and 33.8 percent in 1984.

- o U.S. imports remained at about 3 million units during 1979-83, before rising to 3.6 million units in 1984.

U.S. imports fluctuated little during 1979-83 due in large part to the VRA, which held Japanese imports constant during the latter part of this period. However, in 1984, U.S. imports rose to 3.6 million units owing to increased demand for automobiles produced by U.S. subsidiaries in Canada and West German automobiles, and an increase in the level of the Japanese VRA from 1.68 million units to 1.85 million units.

- o The product mix of U.S.-built autos has changed because of a change in consumer demand resulting from the price of gasoline and other economic factors, but the change in the product mix of imports from Japan is a result principally of the VRA.

As the price (in constant dollars) of gasoline dropped and the U.S. economy improved in late 1982, demand for larger U.S.-produced autos increased, causing a drop in demand for smaller, more fuel-efficient models. The compact segment of the domestic market registered the greatest decrease,

from 24 percent of the U.S.-built models in 1982 to 13.6 percent in 1983. The product mix of Japanese models also changed owing primarily to the VRA. Since the demand for Japanese models was greater than the constrained supply, Japanese importers were able to sell the more expensive models in place of the lower priced models.

- o U.S. retail prices of eight popular Japanese automobiles increased from 17 percent to 35 percent since April 1, 1981.

Smaller Japanese model prices increased by approximately 21 percent but prices of the more luxurious models increased by an average of 33 percent during the VRA period. Imports from Japan have moved upscale towards the more expensive models, and retail dealers frequently add on optional equipment and extra markups.

- o U.S. retail prices of domestic subcompacts increased from 5.7 percent to 8.5 percent during 1981-85, and those for domestic large models increased from 30.1 to 35 percent.

U.S. manufacturers' suggested retail prices of some popular U.S. subcompacts (Chevette, Escort, and Horizon) increased by an average of about 7.2 percent from April 1981 to January 1985, but retail prices of larger models increased during the same period by almost 33 percent. These price changes were due to the fact that the demand for small U.S.-produced autos has declined, principally because of declining gasoline prices and a general upturn in the U.S. economy after 1982. The increased demand for larger cars (primarily because of lower gasoline prices) has allowed the industry to increase retail prices of these models at a more rapid rate than for smaller cars.

3. PROBABLE EFFECTS OF THE VRA

Elements of econometric modeling were used to develop a hypothetical picture of the U.S. auto industry and market during 1981-84 in the absence of the VRA. Review of the results indicates that the VRA has most likely affected both domestic and Japanese auto sales and prices in the U.S. market, U.S. employment levels, and U.S. consumer costs.

- o The VRA is estimated to have increased prices of Japanese autos in the United States.

Transaction prices of Japanese automobiles sold in the United States in 1984 are estimated to have averaged \$1,300 more per auto as a result of the VRA than they would otherwise have been. The estimated VRA-induced price increase of Japanese autos in the United States rose from \$185 per auto in 1981 (the first year of the voluntary quota) to \$359 in 1982, and to \$831 more per auto by 1983. By restricting the supply of imported autos while demand was growing, the VRA appears to have resulted in higher prices each year for U.S. consumers of Japanese cars. Part of this increase was because the Japanese began selling more expensive models during the VRA.

- o The VRA may have caused increases in prices of both new domestic and used domestic and foreign autos in the United States.

Transaction prices of domestically produced new autos may have increased by about \$78 in 1981 and by almost \$660 in 1984 owing to the VRA. It is also likely that the VRA caused an increase in used car prices of both domestic and Japanese models. Many buyers turned to the used car market because of reduced availability and higher prices of new Japanese autos.

- o The total estimated cost to the U.S. consumer as a result of the VRA during 1981-84 was \$15.7 billion.

The VRA cost U.S. consumers an additional \$835 million in 1981, \$1.65 billion in 1982, \$4.68 billion in 1983, and \$8.52 billion in 1984, for a combined total of \$15.7 billion during 1981-84, based on USITC staff estimates. The higher prices on Japanese autos alone increased consumer costs by about \$3.3 billion in 1984 and the remainder of the increase was because of the price increases on domestic autos.

- o In the absence of the VRA it is estimated that an additional 1 million Japanese autos may have been sold in the United States in 1984.

Japan's share of the U.S. market would likely have been approximately 28 percent instead of the 18.4 percent actually recorded in 1984, had the VRA not been in effect. The Japanese were constrained to 1.68 million units during FY 1981-83, and 1.85 million during FY 1984, and it is estimated that consumers would have purchased as many as 1 million more Japanese autos in 1984 if they would have been available.

- o The VRA most likely resulted in an additional 44,000 U.S. jobs and additional sales of 618,000 domestically produced autos in 1984.

It is likely that the VRA added about 5,400 jobs to U.S. automobile industry employment in 1981, and by 1984, the VRA was responsible for a total of 44,000 additional jobs in the domestic industry. If the employment gains in the steel industry and in other supplier industries are added to these numbers, the gains in employment would be significantly higher. If the VRA has strengthened the U.S. dollar, it may have caused a loss of employment in exporting industries and in import-competing industries. This would tend to offset the job gains in the auto industry and its suppliers. The VRA also caused a gain in sales of domestically produced autos. It is believed that although the effect of the VRA was minimal in 1981 (an increase in sales of 75,000 domestic units), the estimated increase in retail sales of U.S. autos brought about by the VRA was approximately 620,000 units in 1984. This was an amount that was about 8 percent higher than the level which would have prevailed absent the Japanese export restraints.

- o Although the inventory and days' supply of U.S.-built autos fluctuated during 1981-84, inventory and days' supply of Japanese imports practically disappeared.

Inventories of domestic autos held by U.S. dealers during 1981-84 were at their lowest point in January 1983 (1.1 million units), but generally increased through January 1985 (1.4 million units). Days' supply of domestic models peaked in January 1982 and generally remained at about 50 to 60 day levels through 1984. Inventories and days' supply of Japanese imports, however, remained below 30 days' supply from July 1983 to January 1985 (averaging about 150,000 units). Because the domestic industry was better able to control its level of dealer inventory to meet market conditions, the domestic inventory and days' supply did not drop significantly. The Japanese inventories, however, declined to less than a 30 days' supply after July 1983 owing to the restraints, causing shortages of most models and resulting higher prices because demand exceeded supply. Auto dealers normally carry a 50 to 60 days' supply of autos in order to allow consumers a choice of auto models.

- o In the absence of the VRA, it is estimated that the U.S.-Japan trade deficit in autos would have been nearly \$2 billion greater in 1983 and almost \$4 billion higher in 1984.

The total U.S. merchandise trade deficit with Japan was \$19.3 billion in 1983 and \$33.9 billion in 1984. It appears that the total U.S. merchandise trade deficit with Japan might have been even greater if the auto restrictions had not been in effect. In the absence of the VRA, it is estimated that the deficit solely in auto trade would have been \$2 billion greater in 1983 and almost \$4 billion more in 1984.

Introduction

During the late 1970's and early 1980's, the U.S. automobile market underwent a significant shift in the shares held by foreign and domestic producers, with the U.S. share dropping from 82.2 percent in 1978 to 71.2 percent in 1981. The American auto industry was experiencing record losses amounting to \$4 billion in 1980. During 1979-80, employment fell from 929,214 workers to 740,191. 1/ United States car sales decreased from 9.0 million units in 1978 to 6.0 million units in 1981. 2/ U.S. retail sales of Japanese autos, conversely, rose from 11.9 percent of new car sales in 1978 to 22.0 percent in 1981. 3/

In June 1980, the Ford Motor Co. and the United Auto Workers filed a joint petition for relief from imports under section 201 of the Trade Act of 1974 with the U.S. International Trade Commission. The petition claimed that the U.S. auto industry was being substantially injured by foreign car imports into the United States. On November 10, 1980, the Commission determined by a 3-2 vote that on-the-highway passenger automobiles were not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat of serious injury, to the domestic industry. The determination followed completion of an investigation, No. TA-201-44, conducted under section 201(a)(1) of the Trade Act of 1974.

By early 1981, legislation to restrict Japanese car imports to 1.6 million units was gaining broad support and the President stated that a veto of such a bill would be politically difficult. 4/ By April of that year, the Japanese Ministry of International Trade and Industry (MITI), following meetings with U.S. trade officials, presented a proposal for a voluntary restraint of 1.6 million to 1.7 million units annually to be enforced by the MITI through administrative guidance. 5/ However, Japanese automakers were critical of the plan, stating that high demand for small cars and high U.S. wages were responsible for the U.S. auto industry slump. 6/ To complicate matters, the European Community contended that any restraint agreement with

1/ Aggregated from data submitted in response to Commission questionnaires used in connection with the Commission's ongoing investigation No. 332-188, The Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry.

2/ Sourced from data compiled from various issues of Automotive News.

3/ Ibid.

4/ Jane Seaberry, "Japan Links Auto Cut to Concessions," Washington Post, April 18, 1981.

5/ John Hartley, "Japanese Car Exports Stir Conflicting Views," Automotive News, Apr. 5, 1981, p. 27.

6/ Ibid.

the United States should also apply to the European Community. 1/ By late April 1981, the MITI had reportedly presented its plan in meetings with several Japanese automakers who, in turn, rejected the proposal. 2/

Despite opposition from the Japanese automakers, the MITI announced a voluntary restraint agreement on Japanese auto exports to the United States on May 1, 1981. The MITI stated that Japan's car exports to the United States would be reduced by 7.7 percent for the Japanese fiscal year of April 1, 1981, through March 31, 1982, from the previous fiscal year's level. 3/ The VRA, in effect, reduced Japan's U.S. car sales from the 1980 level of 1.82 million units to 1.68 million units. 4/ The MITI indicated a second year of restraint would be determined after observing the 1981 U.S. market performance. 5/ At a later date, the Japanese announced that exports to the United States of vehicles such as four-wheel-drive station wagons and "jeep"-type vehicles would be limited to 82,500 units, and exports to Puerto Rico would not exceed 70,000 units. Thus, total Japanese exports of autos and the above types of vehicles to the United States for the Japanese fiscal year 1981 were set at 1,832,500 units. There were no changes in these restraint levels during the next 2 Japanese fiscal years (1982-83).

In November 1983, the Japanese Government announced that it would increase its voluntary export limit from 1.68 million to 1.85 million automobiles during its fiscal year 1984. In addition, it also announced that the four-wheel-drive and "jeep"-type vehicle limit would be increased to 90,848 units and exports to Puerto Rico would rise to 77,083 units. Thus, the total number of Japanese automobiles (excluding automobile trucks) exported to the United States during Japanese FY 1984 would increase from 1,832,500 to 2,017,931 units, or by 10 percent. 6/

Japanese automobile imports are currently restricted in virtually every major industrialized country of the world either by legislation or by bilateral agreements. Italy was the first major automobile-producing country to restrict imports of Japanese autos. In the 1950's, the Italian and Japanese Governments negotiated a bilateral agreement in which each country could accept up to 1,000 assembled automobiles from each other. 7/ In 1976, this limit was increased to 2,200 units, where it remains today. 8/ In 1975, the British Government reached a "gentlemen's agreement" with Japan in which the Japanese agreed to limit exports of automobiles to approximately 11 percent

1/ Ibid.

2/ Peter Behr, "Tokyo Said to Ask 7 percent Auto-Export Cut," Washington Post, Apr. 22, 1981.

3/ "Measures Concerning The Export of Passenger Cars To The U.S.," Ministry of International Trade and Industry, May 1, 1981.

4/ "Japanese Agree To Auto Pact; Brock Optimistic," Washington Star, May 1, 1981.

5/ Ibid.

6/ "Japan Sets New Limits on Car Exports," The Washington Post, Nov. 1, 1983.

7/ "Europe's Auto Makers, Hurt by Low Volume, Make Dismal Showing," Wall Street Journal, Nov. 5, 1984, p. 1.

8/ "Japan Sets New Limits on Car Exports", p. 22.

of the United Kingdom's auto market. 1/ In 1977, France imposed a 3-percent market-share limit on Japanese automobile imports, and in 1980, the French Government decided to delay customs clearance procedures on Japanese automobiles amid concerns that the 3-percent limit might be exceeded. 2/

West Germany negotiated an "informal promise" in 1981 from the Japanese automobile manufacturers that they would limit the rate of increase in the number of Japanese automobiles exported to West Germany and keep the Japanese share of the West German market at about 10 percent. 3/ Also in 1981, the Belgian Government announced that the Japanese had agreed to keep automobile exports to Belgium in 1981 approximately the same as that of the 1980 level and to review the restraint level at the end of March 1982 to see if it should continue for another year. 4/ Later in 1981, the Japanese announced that exports to the Netherlands would remain at the 1980 level. 5/ The only other major European automobile-producing country that has neither a formal nor informal restraint agreement with the Japanese is Sweden. However, in 1983, Sweden's Foreign Minister announced that his Government had "recently informed Japan that it shall be keeping under close scrutiny developments relative to auto imports from that country." 6/ As of this date, no restraint agreement has been entered into between Sweden and Japan.

In early June 1981, the Canadian and Japanese Governments agreed that approximately 174,000 automobiles would be exported from Japan to Canada during April 1, 1981, through March 31, 1982. 7/ On June 11, 1984, the Canadian Trade Minister and the Regional Industrial Expansion Minister announced that Canada and Japan had reached an understanding that the Japanese would export no more than 166,000 automobiles to Canada from April 1, 1984, to March 31, 1985, which would equal approximately 18 percent of the Canadian automobile market.

Profile of the U.S. Industry and U.S. Market

Production and shipments

Total production of automobiles by the six domestic manufacturers 8/ declined from 8.4 million autos in 1979 to 5.1 million units in 1982 and increased to 7.4 million units in 1984. U.S. shipments of automobiles essentially follow the same trend as production, since the auto industry carries few vehicles in inventory. In most U.S. assembly plants, the

1/ Alan Altshuler, Martin Anderson, Daniel Jones, Daniel Roos, and James Womack, The Future of the Automobile, The MIT Press, Cambridge, Massachusetts, 1984, p. 33.

2/ William Chapman, "Europe Sends Warning to Tokyo," Washington Post, May 18, 1981.

3/ "Japan Promises West Germany Export Limits," Washington Post, June 11, 1981.

4/ William Chapman, op. cit.

5/ Alan Altshuler, Martin Anderson, . . . op. cit., p. 33.

6/ Ibid.

7/ Ibid.

8/ The six U.S. manufacturers included in this report are General Motors, Ford, Chrysler, American Motors, Honda, and Volkswagen. New United Motors Manufacturing, Inc. (a joint venture between General Motors and Toyota Motor) produced only 20 automobiles in 1984, thus; it is not included in this report.

automobiles are driven directly to either trucks or railcars at the end of the assembly line and shipped to the retail dealer. The similarity in production and shipment trends can be seen when comparing figure 1 (production) with figure 2 (shipments).

As shown in figure 1, production of compact models held the largest share (29.7 percent) of U.S. industry production in 1979, and subcompact models the lowest share (18.0 percent). ^{1/} Many consumers were faced with rapidly rising gasoline prices in 1979, and changed to smaller models, moving down from standard to intermediate and from intermediate to compact. However, as prices (in constant dollars) of gasoline began to drop and the U.S. economy began to improve in early 1983, consumers switched back to larger models as intermediate and standard/luxury production and their shares of total production showed gains in both 1983 and 1984, compared with such shares in 1982. During 1982-84, the intermediate and standard/luxury shares of production increased from 23.6 percent to 29.8 percent and from 20.4 percent to 24.8 percent, respectively. ^{2/}

U.S. trade

In 1979, the United States experienced a trade deficit of approximately 2.1 million automobiles. By 1984, the trade deficit in automobiles had risen to about 3.0 million units, or by almost 50-percent over that of 1979. The cause of the 1984 deficit can be attributed to an increase in demand for Japanese autos that accounted for an additional 353,000 autos since 1979 and an even more substantial increase in the deficit in auto trade with Canada. In 1979, the deficit in auto trade between the United States and Canada amounted to 83,000 units, and by 1984, this figure had increased to 480,000 units, or by almost 500 percent.

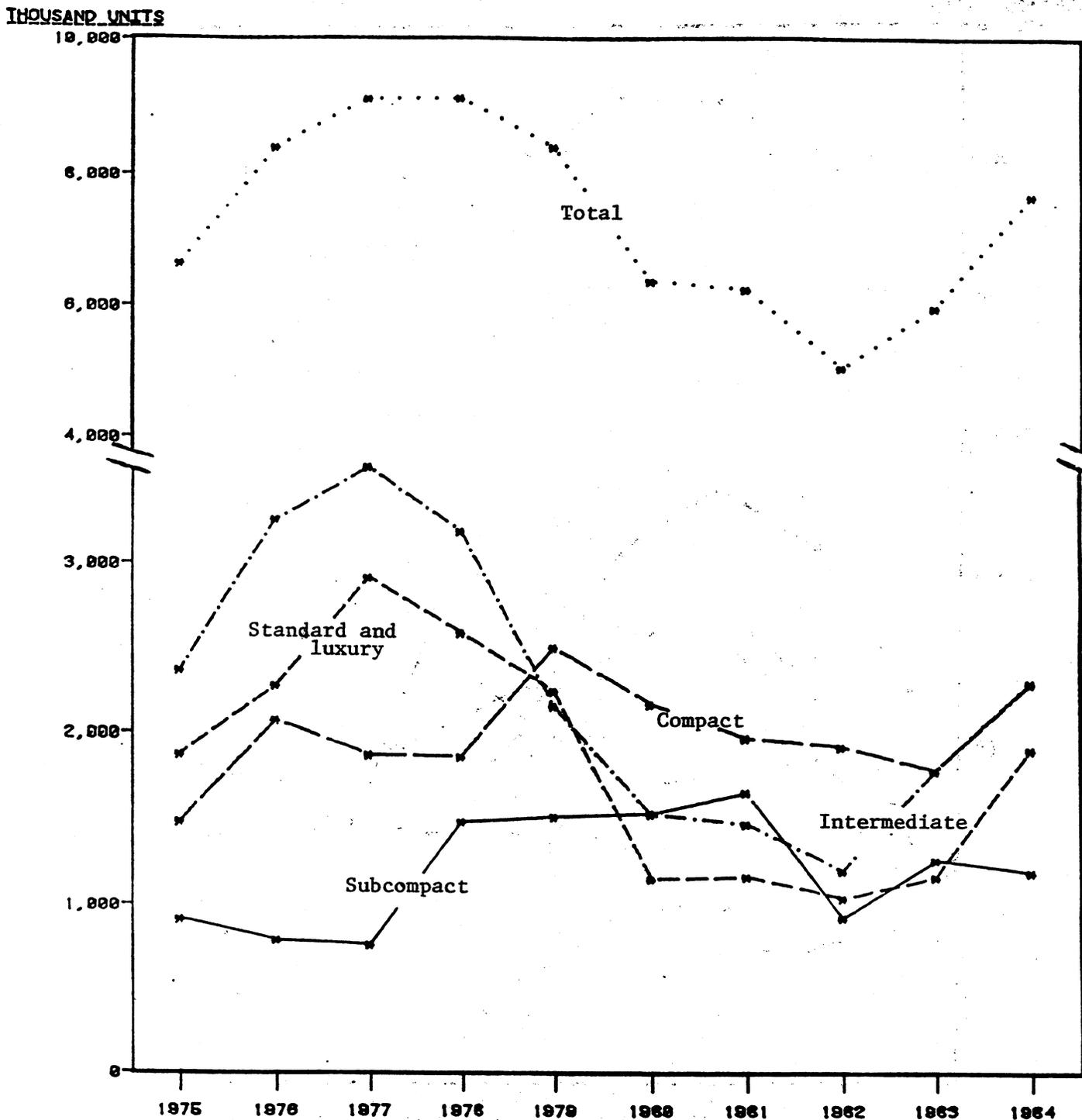
U.S. imports.--U.S. imports of automobiles fluctuated very little between 1979 and 1983, remaining at about 3.0 million units each year. However, in 1984, imports of automobiles rose to about 3.6 million units, owing to an increase in the following:

1. The voluntary export restraint level by the Japanese in fiscal year 1984 (Apr. 1, 1984, through Mar. 31, 1985),
2. Demand for European luxury automobiles that were under no constraints, and
3. Demand for all market categories of automobiles produced in Canada by U.S. subsidiaries and exported to the United States.

^{1/} Figures compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

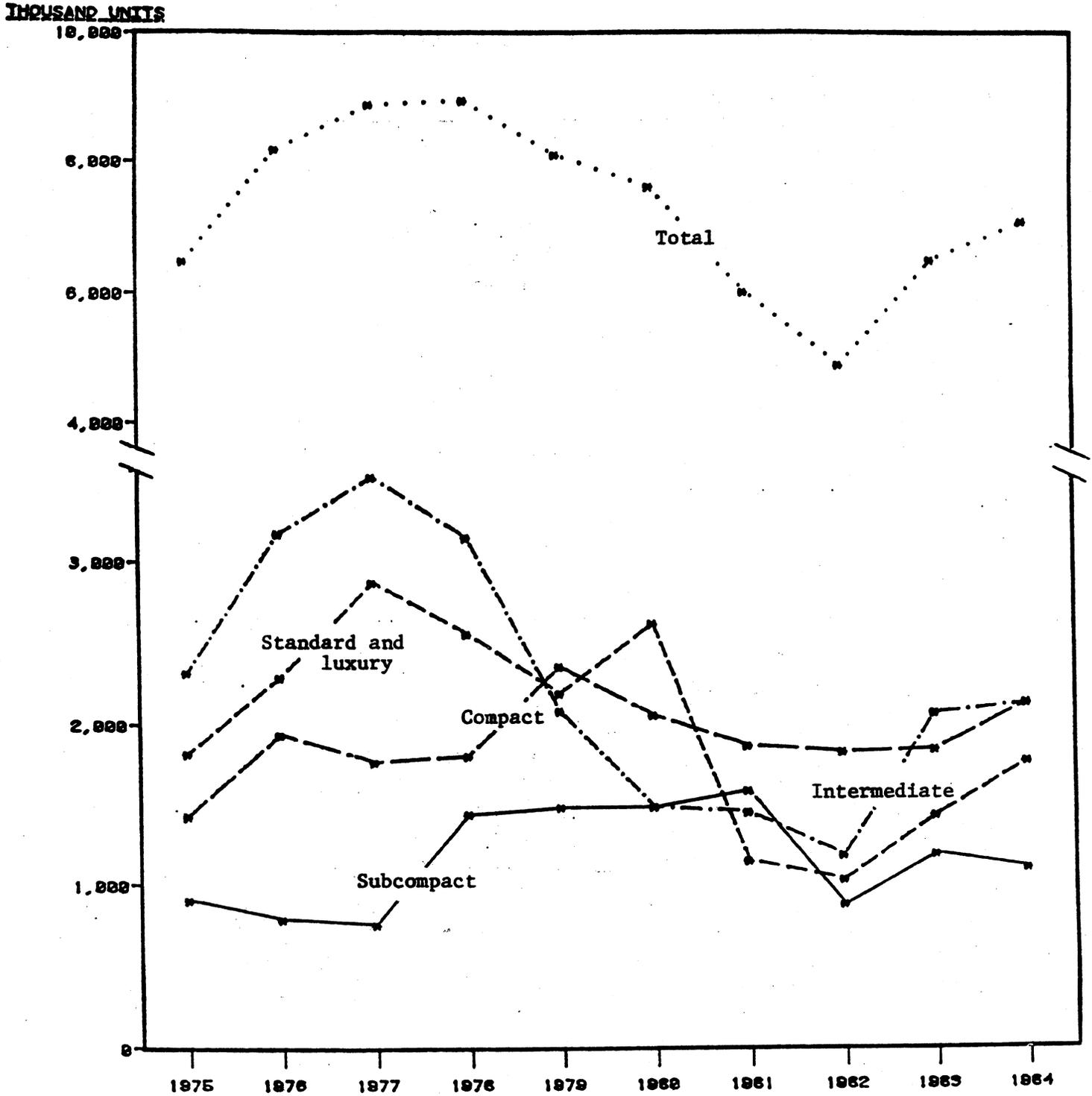
^{2/} Figures compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 1.--Automobiles: U.S. production, by market categories, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 2.--Automobiles: U.S. shipments, by market categories, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The following tabulation, based on official statistics of the U.S. Department of Commerce, shows U.S. imports of automobiles from major sources during 1979-84 (in thousands of units): 1/

Source	1979	1980	1981	1982	1983	1984 <u>1/</u>
Japan-----	1,617	1,992	1,911	1,801	1,871	1,970
Canada-----	677	595	564	702	835	1,060
West Germany-----	395	338	234	260	240	335
All other-----	217	188	147	163	188	235
Total-----	2,906	3,113	2,856	2,926	3,134	3,600

1/ Data are partially estimated.

U.S. imports from Japan during 1981-84 fluctuated little owing to voluntary restraints placed on Japanese auto exports by the Japanese Government in April 1981. U.S. imports from West Germany generally declined during 1979-83 and increased in 1984, whereas imports from Canada and all others followed the general trend of the U.S. economy.

U.S. exports.--U.S. exports of automobiles to Canada accounted for the majority of total U.S. exports. The following tabulation, based on official statistics of the U.S. Department of Commerce, reflects U.S. exports to principal markets during 1979-84 (in thousands of units):

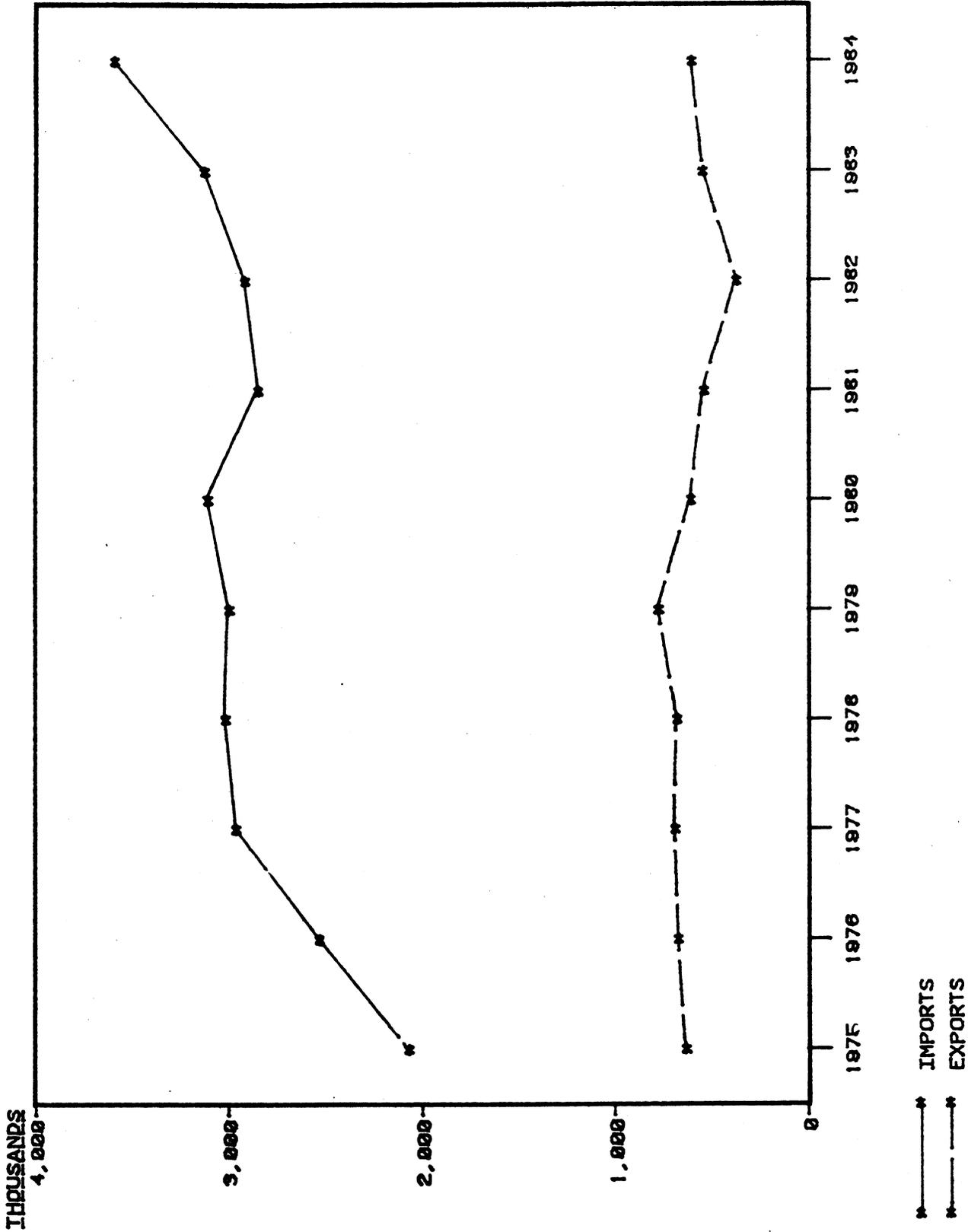
Market	1979	1980	1981	1982	1983	1984 <u>1/</u>
Canada-----	594	508	470	333	523	580
Saudi Arabia-----	31	22	14	11	11	8
All other-----	178	104	81	48	26	14
Total-----	803	634	565	392	560	602

1/ Data are partially estimated.

Figure 3 shows total U.S. imports and exports of automobiles during 1979-84 and the widening deficit in U.S. automobile trade during the period.

1/ Excludes an estimated number of automobiles imported from U.S. foreign trade zones during 1980-84.

Figure 3.--Automobiles: U.S. imports for consumption and exports of domestic merchandise, 1975-84.



Source: Compiled from official statistics of the U.S. Department of Commerce.

Employment and wages

According to data submitted by the domestic automobile industry in response to questionnaires of the U.S. International Commission, 1/ total employment by these firms dropped from 929,214 workers in 1979 to a low of 622,885 in 1982 and then increased to 720,448 during January-June 1984. Employment of production workers followed the same trend, and the ratio of total employment to production workers also remained relatively constant, as shown in table 1. As production of autos declined during 1979-82, employment in the industry dropped. However, as the economy recovered and demand for autos increased in 1983 and 1984, workers were called back by the industry.

Table 1.--Employment in U.S. automobile producing firms: Average number employed, by production and nonproduction employees, 1979-83, and January-June 1984 1/

	1979	1980	1981	1982	1983	Jan.-June 1984
Average number employed:						
All employees (number)-----	929,214	740,191	723,946	622,885	656,970	720,448
Production employees (number)---	779,121	609,315	602,264	509,195	543,849	605,065
Nonproduction employees (number)---	150,092	130,876	121,682	113,690	113,121	115,383
Ratio of production to total employees (percent)---	83.8	82.3	83.2	81.7	82.8	83.4

1/ Includes significant numbers of employees engaged in the production of trucks and automotive parts.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Average hourly wages for the six domestic automobile producers increased from \$10.52 in 1979 to \$15.33 during January-June 1984, as shown in the following tabulation, based on Commission questionnaire responses: 1/

1/ Submitted in connection with inv. No. 332-188.

<u>Period</u>	<u>Total wages paid to production workers (million dollars)</u>	<u>Hours worked (millions)</u>	<u>Average hourly wages</u>
1979-----	18,738	1,781	\$10.52
1980-----	15,874	1,363	11.64
1981-----	17,304	1,359	12.73
1982-----	14,995	1,127	13.31
1983-----	18,036	1,279	14.10
1984 (Jan.- June)-----	11,300	737	15.33

Hours worked per vehicle and Japanese cost advantage

Data submitted by the domestic automobile manufacturers in response to Commission questionnaires and data compiled from public sources indicate that hours worked per motor vehicle (autos and trucks) produced has declined from 211.6 in 1979 to 199.2 in 1984, as shown in the following tabulation:

<u>Year</u>	<u>Hours worked (millions)</u>	<u>Motor vehicles produced (thousands)</u>	<u>Hours per motor vehicle</u>
1979-----	1,781	8,413	211.6
1980-----	1,363	6,377	213.7
1981-----	1,359	6,253	217.3
1982-----	1,127	5,072	222.2
1983-----	1,279	5,980	213.8
1984-----	1,474	7,400	199.2

An examination of other published research efforts that have attempted to quantify the number of hours required to produce a typical U.S. automobile (usually a subcompact or compact model) yielded results that were inconclusive and conflicting. Much of this disagreement stems from the varying definitions of the production process. In a highly vertically integrated operation, man-hours per vehicle calculations may include such nonassembly components such as engine or drive train production. For a basic assembly operation, however, man-hours per unit might consider only the time required to incorporate such items into the finished vehicle. In addition, much of the research to date has also attempted to compare the hours required to produce a U.S. automobile with the number of hours required to produce a Japanese-built automobile. A summary of the research results is as follows:

- o Yoshi Tsurumi, a Professor of International Business, Baruch College, estimated that in 1979, it took Mazda 47 labor hours to produce a subcompact in Japan, but Ford required 112 labor hours in the United States to produce a similar size automobile. ^{1/} In

^{1/} Yoshi Tsurumi, Multinational Management, Ballinger, Cambridge, Massachusetts, 1984, chap. 13.

the same article, Tsurumi also cited a Chrysler Corp. press release that stated that Japanese manufacturers currently used 30 labor hours compared with 60 labor hours in the United States to produce a subcompact auto. 1/

- o It is reported that General Motors currently requires 130 hours per subcompact car but expects to reduce the level to 70 to 75 hours per unit by 1988-90. 2/
- o A report to be released by Data Resources, Inc., estimates that approximately 60 hours are currently required to produce a Japanese subcompact, and almost 75 hours, for a larger, sporty model. 3/
- o A recent study released by the Massachusetts Institute of Technology reported that in 1970 Japanese automakers needed 250 hours to produce an auto compared with 200 hours for a typical U.S. producer. However, the Japanese can now produce an automobile with 35 percent fewer hours per car than U.S. producers, or approximately 140 hours per car, as opposed to 215 hours for U.S. cars. 4/
- o In 1981, James Harbour & Associates estimated that U.S. auto producers required about 150 hours per subcompact auto, but the Japanese producer needed only 80 hours. Harbour also estimated that the labor hours used by suppliers producing the components purchased outside of the auto manufacturer were about equal. 5/

Using the above estimates, it is apparent that there is considerable disagreement regarding the number of hours required by Japanese and U.S. producers to manufacture a "typical" subcompact automobile. All of the studies, however, report that the Japanese require fewer man-hours to produce an auto than U.S. producers. In addition, most of the studies indicate that fewer hours are required to produce an auto today than 4 to 5 years ago in both countries and that the gap between U.S. and Japanese producers appears to be narrowing. It should be noted, however, that any additional outsourcing (within the United States or in foreign countries) would tend to decrease the hours per vehicle, with no actual increase in U.S. productivity. It is known that additional outside purchasing has occurred during 1979-84, but the degree to which that has occurred is unknown.

Similar to the dispute concerning the number of hours required to produce an automobile, there is no clear consensus regarding the extent of the

1/ Ibid.

2/ Warren Brown, "GM Making Last Stab at Small Cars," Washington Post, Jan. 13, 1985, p. E1.

3/ Unpublished report, Data Resources, Inc., 1985.

4/ Robert Samuelson, GM's UAW contract: Blue Smoke, Mirrors," Washington Post, Oct. 3, 1984.

5/ Ann Fisher, "Can Detroit Live Without Quotas," Fortune, June 25, 1984, p. 23.

Japanese cost advantage over U.S. built automobiles. According to many automobile analysts, the Japanese enjoy a landed cost advantage of approximately \$1,500 to \$2,000 per automobile when compared with a typical U.S.-built auto. 1/ This estimate, however, has been disputed as either too high or too low. One industry analyst believes that the Japanese enjoy a cost advantage of over \$2,000 per automobile over a comparable domestic auto. Officials from Ford Motor Co. believe the cost advantage is at least \$2,000 per vehicle, with much of the advantage attributed to the U.S.-Japanese currency imbalance. 2/ A professor at the City University of New York stated that still others believe that the cost advantage of Japanese subcompacts over their American counterparts is rooted in the flexible manufacturing systems that Japanese auto firms have refined for over a decade. 3/

One of the most extensive studies comparing U.S. with Japanese costs estimated that the Japanese produced a subcompact model auto with 42 percent fewer hours than that required for a U.S. car and that the manufacturing cost advantage was approximately \$1,643 per unit. The wage difference was about \$550 per vehicle, and the cost to ship the auto to a U.S. port was about \$480 per unit, giving the Japanese an average U.S. landed cost advantage of \$1,708 per auto. 4/ This study concluded that the cost advantage was due primarily to superior management, rather than "cheap labor" or superior technology.

At the lower end of the Japanese unit cost advantage are estimates ranging between \$200 and \$1,500. 5/ The National Academy of Engineers cites management techniques, low absenteeism rates, and lower hourly wages (as much as \$500 per auto), as the three principal factors on the Japanese cost advantage. 6/

In a narrower-scope study, an analyst at Daiwa Securities Co. of Japan, Yoshihide Konda, conducted research comparing the costs of the Honda Accord built in Honda's Marysville, Ohio plant and the Accord built in Japan. His study indicates that the U.S.-built Honda is about \$500 more expensive, but the Ohio Accords are still \$1,000 to \$1,500 less expensive to produce than similar sized U.S.-produced autos. 7/ Even though there is general agreement

1/ "Small-car Future Rides on Saturn," Washington Post, Jan. 13, 1985, p. E1; "Brock, Auto-import Quotas to End," Washington Post, May 2, 1984, and "Japan's Cost Edge call Overstated," Automotive News, May 2, 1983, p. 12.

2/ Greg Johnson, "Detroit's Lead Isn't Long-Lived," Industry Week, Apr. 2, 1984, p. 15.

3/ Yoshi Tsurumi, How Not to Save the U.S. Auto Industry--Hidden Costs of Import Quotas on Japanese Cars, Baruch College, the City University of New York, 1984.

4/ Hobart Rowen, "Detroit Turns a Deaf Ear to What Consumers Are Saying," Washington Post, Nov. 6, 1983, p. G1.

5/ Anne Fisher, "Can Detroit Live Without Quotes?" Fortune, June 25, 1984, p. 20; Kenneth R. Mac Donald, "Japan's Cost Edge Called Overstated," Automotive News, May 2, 1983, p. 12.

6/ The Competitive Status of the U.S. Auto Industry, the National Academy of Engineers and the National Research Council, Nov. 1, 1984.

7/ Lance Ealey, "U.S.-Build Hondas, Nissans Retain Cost Edge," Automotive Industries, September 1984, p. 18.

as to the existence of a cost advantage, there is not agreement as to the principal cause of the advantage.

Financial data

Profit and loss.--The six domestic producers of automobiles reported a net loss on U.S. operations each year during 1979-82 and showed profits in 1983 and January-June 1984, according to questionnaire data submitted to the U.S. International Trade Commission (in millions of dollars):

Item	1979	1980	1981	1982	1983	1984 ^{1/}
Net Sales-----	88,413	72,100	80,734	79,495	108,003	131,000
Cost of goods sold-----	88,813	76,767	83,030	80,048	102,673	119,600
Net profit or (loss)----	(400)	(4,667)	(2,296)	(553)	5,330	10,400

^{1/} Estimated on the basis of January-June 1984 data submitted in response to questionnaires of the U.S. International Trade Commission and various trade publications.

The dramatic turnaround by the domestic industry (from a \$4.7 billion loss in 1980 to a \$10.4 billion profit in 1984) was caused by a combination of factors. The most important factor was the increase in production. Since the auto industry has very high fixed costs, once the breakeven point is reached, the industry's profits increase at a rapid rate (see breakeven analysis, p. 14). The industry also reduced its operating costs substantially, reducing both fixed and variable costs during 1980-84. The other major factor that might have affected profits was the VRA that limited the number of Japanese autos and allowed the auto industry to sell more units than if the VRA had not been in effect (see p. 36).

During the years the voluntary restraints were in effect, the domestic auto companies registered a total net profit of about \$12.9 billion on their U.S. operations. If profits in the January-March 1985 are projected on the basis of January 1985 sales (which were 12 percent ahead of those in January 1984), then the domestic industry will generate at least an additional \$3.2 billion in profits by March 31, 1985, when the current voluntary restraint agreement is scheduled to expire.

Worldwide sales and profits and losses during 1979-84 reported by the four principal U.S. automakers (General Motors, Ford, Chrysler, and American Motors) indicate a somewhat contrasting picture, as shown in the following tabulation, from data compiled by Automotive News (in millions of dollars):

	1979	1980	1981	1982	1983	1984 <u>1/</u>
Net sales-----	129,944	106,620	113,480	110,400	135,837	160,000
Net profit or (loss)-----	3,036	(4,211)	(1,340)	321	6,151	10,000

1/ Estimated by the staff of the U.S. International Trade Commission.

Instead of 4 consecutive years (1979-82) of losses, amounting to \$7.9 billion, as reported on U.S. operations, the four U.S.-based auto manufacturers reported 2 years of losses, totaling \$5.6 billion, on worldwide sales. In the 4 profitable years during 1979-84, the four major U.S. producers together registered total profits of \$20.4 billion for worldwide operations. This was due in part to the fact that General Motors and Ford operated profitably for most years in their major overseas markets.

Breakeven analysis.--An indicator of a company's ability to generate profits or losses may be found through breakeven analysis. Inasmuch as such analysis involves determining the level of net sales required to cover a firm's fixed and variable expenses, the ultimate breakeven point calculation is a subjective assessment. Variable expenses that fluctuate substantially with production scales, business cycles, and events in supplier industries are difficult to accurately assess. However, breakeven calculations generally yield reasonable estimates and, when examined over a period of time, can provide insight into trends of operational profitability and potential corporate performance.

The 3 major U.S. automakers, General Motors, Ford, and Chrysler, which together account for over 90 percent of domestic production, have each substantially lowered their breakeven point during 1979-84. 1/ According to one analysis, General Motors' breakeven level, based on worldwide vehicle sales, fell from 8.4 million units in 1979-80 to about 6.7 million units in 1983. 2/ Similarly, the breakeven level for Ford's North American vehicle operations declined from 3.6 million units in 1979-80 to 2.5 million units in 1983. 3/ Chrysler Corp. reportedly reduced its breakeven level for its North American operations from 2.3 million units to 1.1 million units during the period 1979-80. 4/ The 1979 breakeven requirement for Chrysler exceeded

1/ In this section, breakeven analyses for U.S. automotive operations alone were not available and most likely would have yielded misleading information. Given the extensive integration of U.S. and Canadian automotive facilities, breakeven estimates for total North American operations indicate U.S. corporate situations more satisfactorily. However, the General Motors Corp. provides only financial data consolidating their worldwide operations, including Europe and Brazil, for public use. Nonetheless, the data do provide an indication of relative U.S. performance.

2/ David Healy, Cars-Analysis and Forecast, Drexel Burnham Lambert, Inc., November 1984.

3/ Ibid.

4/ Ibid.

Chrysler's production capacity at the time. Another analysis indicated that GM's 1982 breakeven point of 6.5 million units for its worldwide vehicle operations had been lowered to 5.6 million units by 1984 and Ford's North American vehicle operations breakeven declined from 3.1 million units in 1982 to 2.3 million units in 1983 and to 2.1 million units by 1984. 1/ This analysis noted that Chrysler's corporate restructuring came about more quickly than those of its larger domestic rivals, such that the corporation's breakeven level has remained at about 1.2 million vehicles since 1982. 2/

One of the principal reasons for the drop in breakeven points was that the industry was able to dramatically reduce some of its costs. For example, Ford Motor Co. reduced costs by a total of \$4 billion between 1979 and early 1984 by closing seven plants and reducing the payroll by 60,000 salaried and hourly employees. 3/ According to James Harbour, Ford, Chrysler, and General Motors have made substantial gains in quality control, or "trying to get things right the first time." 4/ The Chrysler Corp. negotiated wage and benefit concessions from hourly workers in 1980 which amounted to a savings of about \$600 per car, 5/ and when the new General Motors and Ford labor contracts were negotiated in October 1984, the wage and benefit increases were moderate compared with previous contracts. The auto companies have also put pressure on suppliers to decrease prices and increase the level of quality of the parts that they supply the industry. 6/ In addition to these specific savings, the industry has decreased the amount of inventory they carry, increased outside purchasing (which reduces capital expenditures and research and development costs), increased productivity, and even reorganized major divisions of the corporation so that they are more cost effective and efficient. 7/ According to James Harbour, the "Big Three" (General Motors, Ford, and Chrysler) chopped more than \$10 billion out of their annual costs by "squeezing suppliers for millions of dollars, canceling or delaying at least a dozen new products, and closing enough plant space to house a small city." 8/

Capital expenditures and research and development.--Capital expenditures of the U.S. auto industry increased each year from 1979 to 1981 and then declined in both 1982 and 1983 and are estimated to have remained stable in 1984. Expenditures for research and development, however, increased each year, from \$3.4 billion in 1979 to \$4.1 billion in 1983. The following tabulation depicts both research and development and capital expenditures in 1979-83, which was derived from data supplied by the industry in response to U.S. International Trade Commission questionnaires (in millions of dollars):

1/ Harvey Heinback, unpublished report, Merrill Lynch, Pierce, Fenner and Smith, Inc., 1984.

2/ Ibid.

3/ Peter Nulty, "Ford's Fragile Recovery," Fortune, Apr. 2, 1984, p. 42.

4/ "Detroit Turns a Deaf Ear to What Consumers Are Saying," Washington Post, Nov. 6, 1983.

5/ "Ford Faces the Future: Cut Costs, Think Small," Washington Post, May 31, 1981.

6/ "Pressure on Auto Suppliers Increases As Detroit Prepares for Quota's End," Washington Post, May 31, 1984.

7/ Marjorie Sorge, "Smith: GM To Be Reshaped Giant by End of Decade," Automotive News, Feb. 13, 1984, p. 1.

8/ "Unions Bear Come-Back Burden," Washington Post, Dec. 25, 1983.

Source	1979	1980	1981	1982	1983
Capital expenditures-----	6,888	7,311	7,761	6,795	5,125
Research and development-----	3,414	3,418	3,554	3,600	4,034
Total-----	10,302	10,729	11,315	10,395	9,159

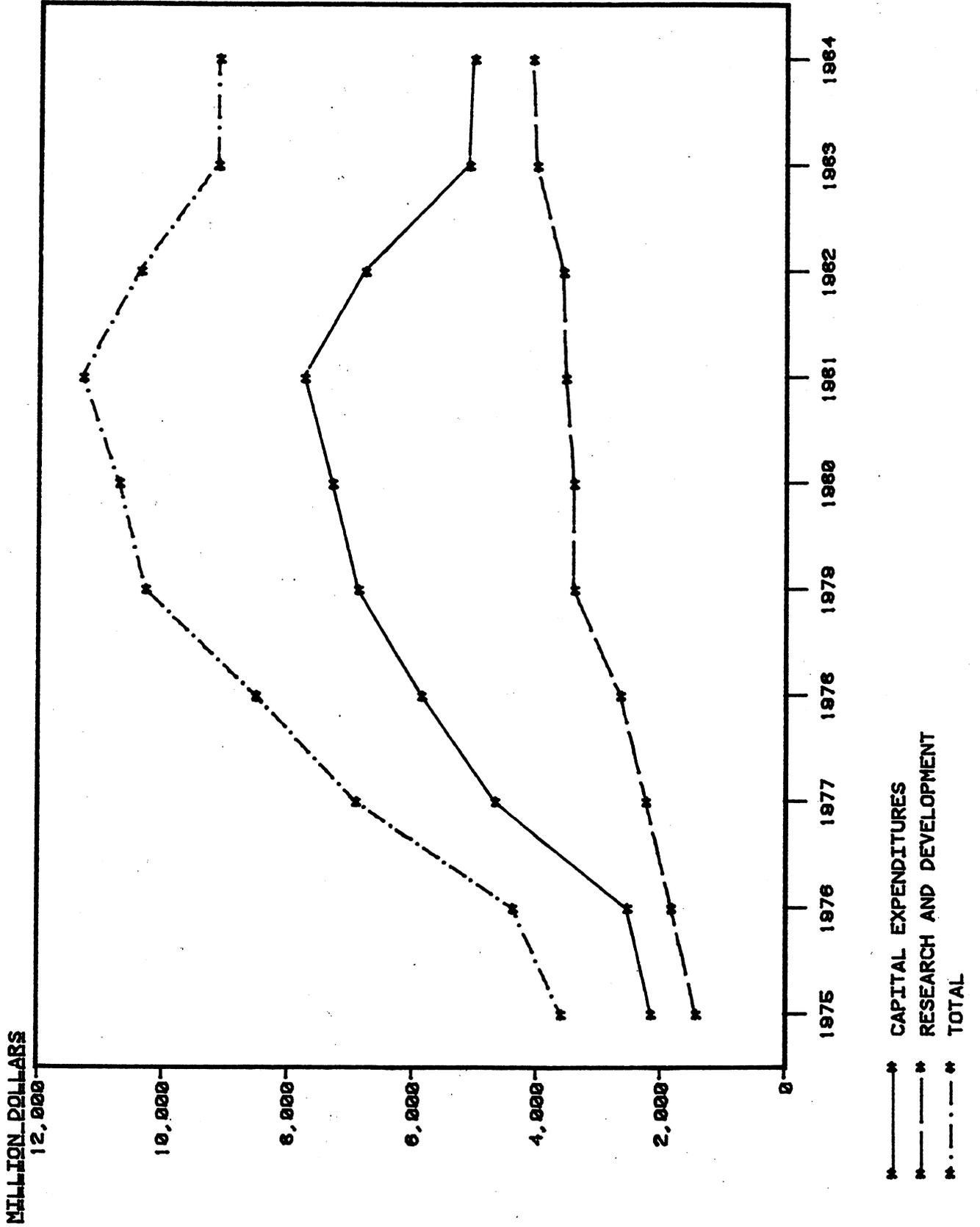
As shown in figure 4, capital expenditures and research and development costs increased at a very rapid rate from 1975 to 1980 and then began to decline after 1981. Although data are not available for 1984, it is believed that capital expenditures in 1984 will probably be about the same or decrease slightly from those in 1983, and research and development costs will most likely increase modestly. Hence, capital expenditures have declined each year following the initiation in 1981 of the voluntary restraints, and research and development expenditures have increased each year.

One explanation for the decline in capital expenditures after 1981 is that much of the major retooling efforts by the industry occurred prior to 1982, when the industry redesigned many of its autos from rear-wheel-drive to front-wheel-drive, such as the subcompact Ford Escort/Lynx, the Chrysler Reliant/Aries, and the General Motors Cavalier, J-2000, and Cimarron. Also, although the domestic industry has introduced additional newly designed front-wheel-drive automobiles since 1982, much of the expense for capital investment was expended prior to 1982. In addition, the heavy investment in the late 1970's and 1980-81 created a large debt burden for the domestic companies, increasing their debt-to-equity ratio by a substantial amount. Because of the high debt, it is likely that the companies were reluctant to continue increasing the debt and therefore did not make some of the capital investments that may have otherwise been made.

Much of the capital investment by the industry has been for either building new plants or completely redesigning older plants so that newly developed processes such as robotized welding, computerized process controls, transfer lines, and overhead conveyors can be utilized. In addition, the auto industry expended significant amounts of capital for the use of computer-aided design (CAD) and computer-aided manufacturing (CAM) systems during the last 5 years. Robots, which were formerly used primarily for major welding operations, are now being used for painting, materials-handling, and quality control procedures. The industry now operates with a much lower inventory level than in 1980 owing to direct computer linkups with suppliers and increased computer-monitored inventory within the assembly plant. New production processes, such as "evaporation casting," or "lost foam casting" have also decreased production costs. ^{1/} The increased usage of plastics, aluminum, and carbon fibers has not only reduced the weight of the average automobile, but in many cases the cost of producing it as well. Although it is not possible to quantify the cost savings of these new production methods and technological changes, there is no doubt that the savings because of these advancements have been significant.

^{1/} Wards Automotive Yearbook, 1984, p. 25.

Figure 4.--Capital expenditures, research and development expenditures, and total expenditures, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except 1984 which is partially estimated by the staff of the U.S. International Trade Commission.

Capacity changes

Capacity for the U.S. production of automobiles decreased from 10.1 million units in 1979 to 8.6 million units in 1983 and then rose to 9.0 million units in 1984. According to data supplied by the industry in response to U.S. International Trade Commission questionnaires, capacity utilization has been calculated, as shown on the following tabulation:

Source	1979	1980	1981	1982	1983	1984
Capacity						
thousands--	10,145	9,813	9,216	9,295	8,588	8,951
U.S. produc-						
tion-----do-----	8,413	6,377	6,253	5,072	5,980	7,773
Capacity utiliza-						
tion rate						
percent--	82.9	65.0	67.8	54.6	69.6	86.8

A number of financial analysts have forecasted domestic sales for 1985 at a level of between 7.6 million and 9.5 million units, with a composite average of 8.2 million units. ^{1/} If the composite figure of 8.2 million units is correct and domestic capacity remains relatively constant, then the capacity utilization rate for 1985 should approach 90 percent.

Although the industry produced fewer automobiles in 1984 compared with the number produced in 1979, the capacity utilization rate increased almost by 4 percentage points because of the drop in total capacity. The three principal U.S. automakers all closed assembly plants during 1979-81 in order to reduce costs and either renovated or built completely new assembly plants during 1982-84 that are more productive than the older plants that were closed.

U.S. retail sales

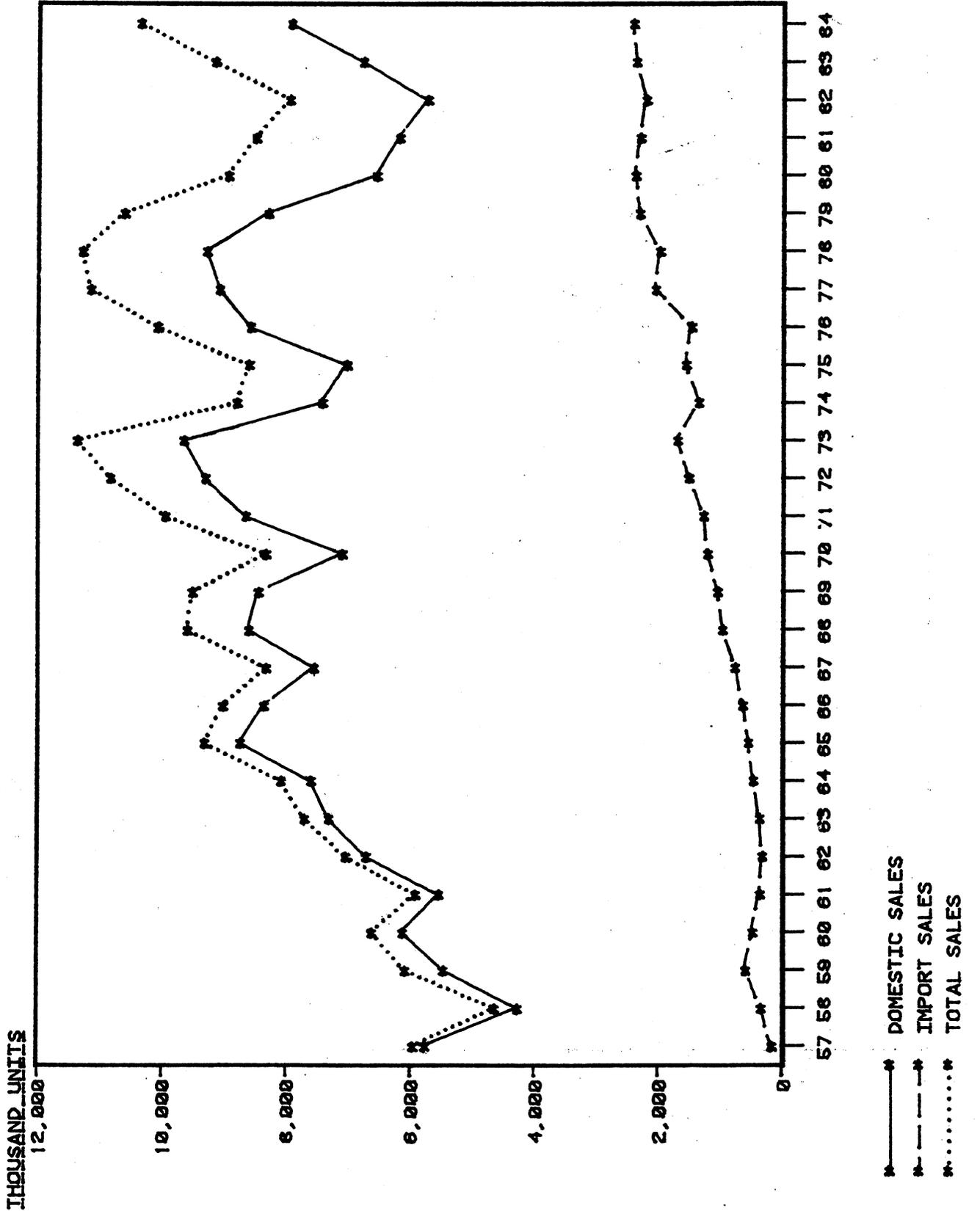
Sales of imported automobiles were insignificant in the U.S. market until 1957, when retail sales approached 200,000 units. This number, however, represented only 3 percent of the U.S. market in 1957. Not until 1969 did import car sales reach the 1 million mark and, in 1977, sales of imports surpassed 2 million units. Total annual sales of domestically produced and imported automobiles are presented in figure 5 and import penetration ratios for all imports and Japanese imports only are shown in figure 6.

U.S. retail sales of domestically produced automobiles dropped from 8.2 million units in 1979 to 5.8 million units in 1982 and then rose to almost 8.0 million units in 1984. ^{2/} For the first 10 days of January 1985, retail sales of U.S. autos were 12 percent above those in the corresponding period in

^{1/} "Just How Good Will 1985 Be?," Automotive News, Jan. 14, 1985, p. E5.

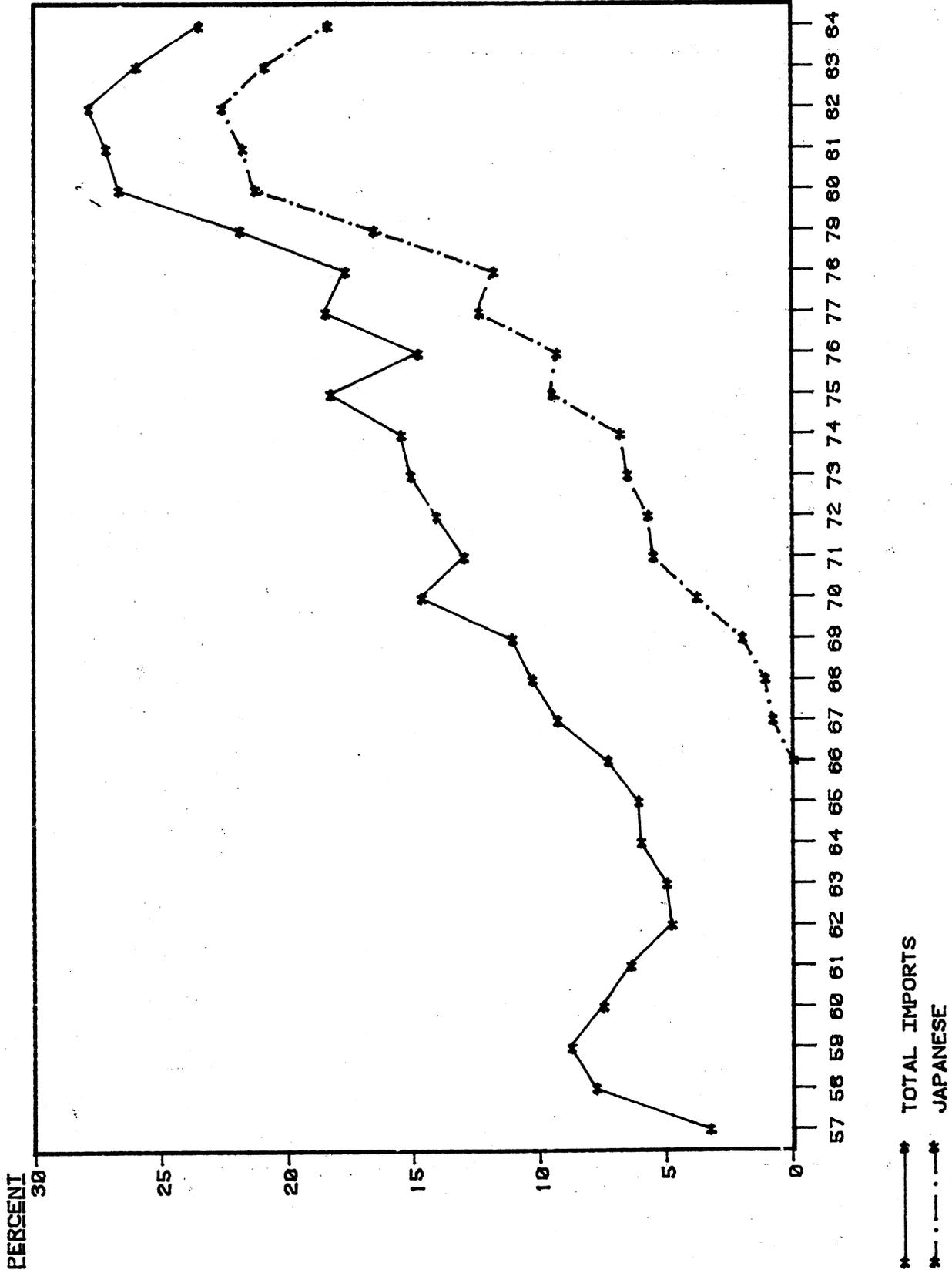
^{2/} U.S. retail sales of domestic automobiles include automobiles imported from Canada which were produced by subsidiaries of the four U.S.-based manufacturers.

Figure 5.--Automobiles: U.S. sales of domestically produced, imported, and total, 1957-84.



Source: Automotive News.

Figure 6.--Automobiles: U.S. import penetration, Japanese and total, 1957-84.



Source: Automotive News.

1984. ^{1/} U.S. sales of imported automobiles, however, remained almost constant during 1979-84 owing primarily to the Japanese voluntary export restraints. During the period under review, the ratio of U.S. imports to total retail sales peaked in 1982 at 27.8 percent and declined to 23.3 percent in 1984, as shown in table 2.

Table 2.--Automobiles: U.S. retail sales, and import retail sales, and total retail sales, 1979-84

Year	Retail domestic sales	Import retail sales	Total retail sales	Ratio of import retail sales to total sales
	1,000 units			Percent
1979	8,228	2,326	10,554	22.0
1980	6,578	2,395	8,973	26.7
1981	6,206	2,325	8,531	27.3
1982	5,757	2,221	7,978	27.8
1983	6,795	2,382	9,177	26.0
1984	7,952	2,435	10,387	23.4

Source: Automotive News.

U.S. sales of Japanese autos fluctuated by only a small margin after 1980 because of Japan's voluntary export restraints. U.S. retail sales of imports from all other countries (primarily West Germany, Sweden, and France) declined from 577,000 units in 1979 to 420,000 units in 1982 and then rose to 512,000 units in 1984, as shown in table 3.

Table 3.--Automobiles: Total U.S. import retail sales; domestic sales of Japanese autos; domestic retail sales of all other imports; share of total import retail sales accounted for by Japan; and share of total import retail sales accounted for by all other imports, 1979-84

Year	Total U.S. import retail sales	Domestic retail sales of Japanese autos	Share of total import retail sales accounted for by Japanese autos	Domestic retail sales of all other imports	Share of total import retail sales accounted for by all other auto imports
	Thousands	Thousands	Percent	Thousands	Percent
1979	2,326	1,749	75.2	577	24.8
1980	2,395	1,908	79.7	487	20.3
1981	2,325	1,859	80.0	466	20.0
1982	2,221	1,801	81.1	420	18.9
1983	2,382	1,916	80.4	466	19.6
1984	2,418	1,906	78.8	512	21.2

Source: Automotive News.

^{1/} "Car Sales on Fast Track as Year Begins," Washington Post, Jan. 16, 1985.

Although sales of Japanese-built autos increased in 1983 and 1984, their share of the U.S. import market dropped from a peak of 81.1 percent in 1982 to 78.8 percent in 1984, or the lowest level since 1979. During the restraint period (1981-84), sales of non-Japanese imports dropped from 466,000 units in 1981 to 420,000 units in 1982 and then climbed to 512,000 units in 1984. During the same period, the non-Japanese import share of the U.S. import market increased from 18.9 percent in 1981 to 21.2 percent in 1984. The non-Japanese share of the U.S. import market for December 1984, the latest month for which data are available, climbed to 23.0 percent of the U.S. import market, and the Japanese share dropped to its lowest level since prior to the restraints.

Much of the European sales' increase in 1984 was in the lower price range of the European imports, such as Volvo, Saab, Volkswagen, and the lowest priced BMW's. ^{1/} Many of these autos compete with not only the upper priced domestic autos, but also the larger Japanese autos such as the Toyota Cressida, Nissan Maxima, and Mitsubishi Starion. The following tabulation, based on data derived from Ward's Automotive Reports, shows U.S. retail sales of selected European imports in 1982 and 1984:

Make	1982	1984	Increase, 1984 over 1982
	Units		Percent
Volkswagen	67,456	101,419	50.3
Volvo	71,568	97,915	36.8
BMW	50,594	68,650	35.7
Saab	18,179	32,768	80.3
Total	207,797	300,752	44.7

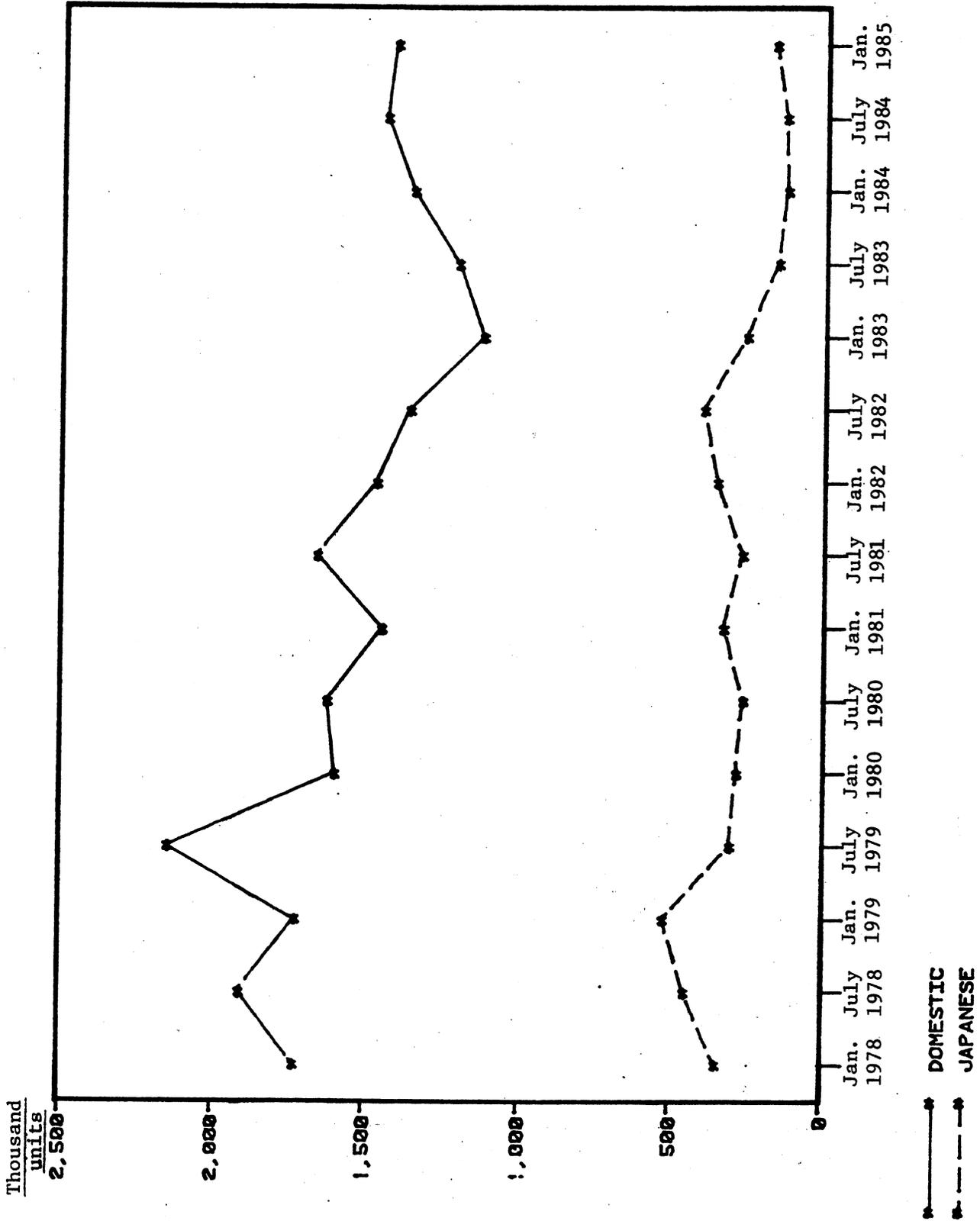
Inventories

Retail dealers of both domestic and imported automobiles have traditionally tried to maintain an inventory of autos that will sustain sales for a 60-day period. This "benchmark" is a compromise between having an adequate selection of models with a variety of optional equipment in stock and an inventory stock that can be maintained while finance and insurance charges, storage area, and other overhead costs are kept at a reasonable level. As shown in figures 7 and 8, inventory and days' supply of domestic autos have fluctuated widely during 1979-84, but inventories and days' supply of Japanese autos peaked in January 1979 at 525,000 units and a 122-day supply. Since this time, inventories of Japanese automobiles have not climbed higher than 57 days. ^{2/} Since July 31, 1983, inventories of Japanese automobiles have remained below a 30-day supply. A 30-day supply of imported automobiles is considered to be no dealer stock, because the period of time between the U.S.

^{1/} These models have suggested manufacturers' retail prices of between \$7,500 and \$22,000.

^{2/} Based on inventory and days' supply as of January 31 and July 31 of each year.

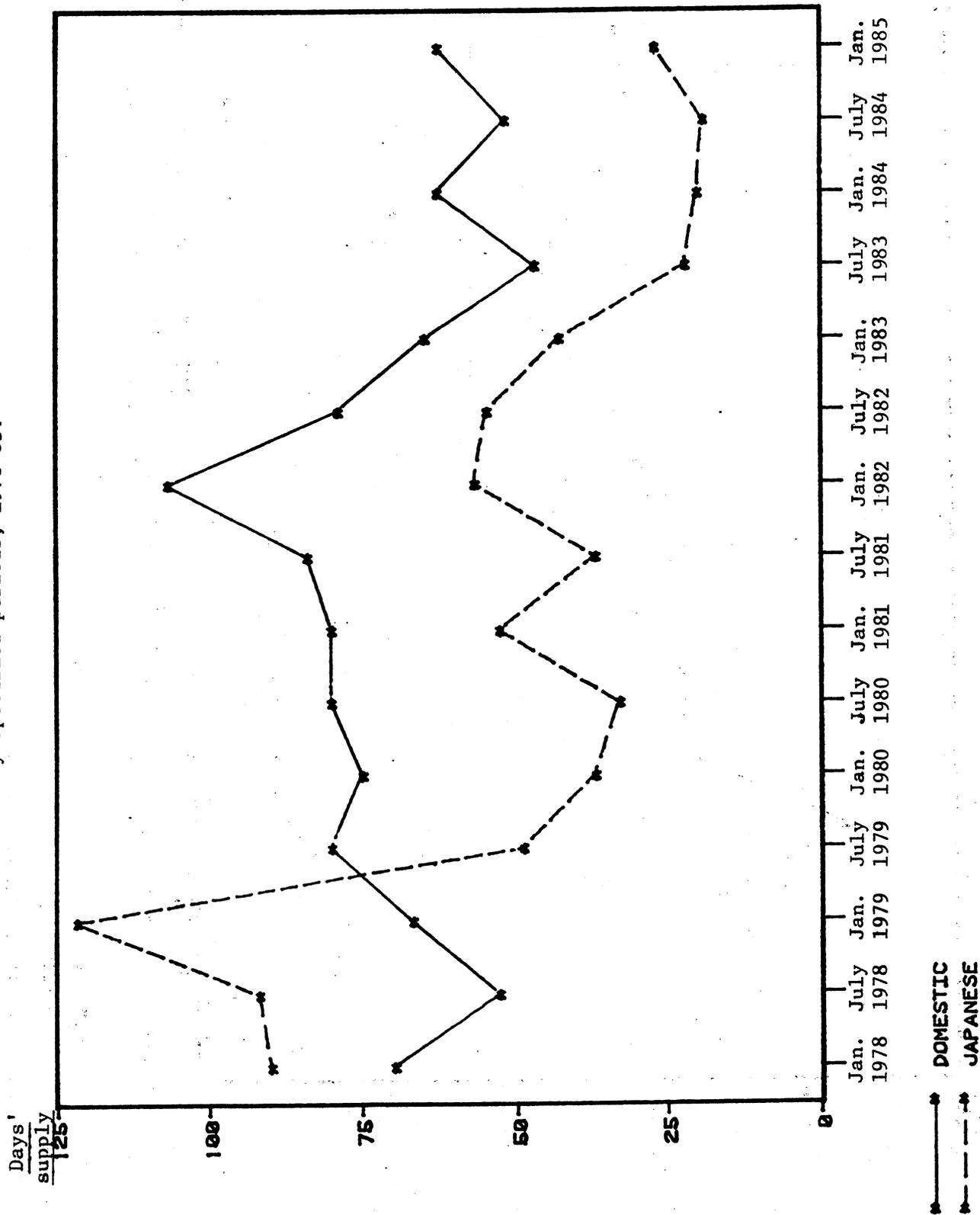
Figure 7.--Automobiles: U.S. inventories of domestic and Japanese, by specified periods, 1978-85.



Source: Ward's Automotive Reports.

Note.--Japanese inventory data include trucks during 1978-82.

Figure 8.--Automobiles: Days' supply of domestic and Japanese, by specified periods, 1978-85.



Source: Ward's Automotive Reports.

Note.--Japanese days' supply for 1978-82 includes light trucks.

Customs Service clearance at the port and delivery to the retail dealer is 2 to 4 weeks. Therefore, most imports of Japanese autos are sold by retail dealers soon after their arrival at the dealership.

Retail prices

Although the manufacturers' suggested retail prices of automobiles (the "sticker" price) are not usually the transaction price at the dealership (the ultimate cost of the auto to the consumer), such retail prices are a very good indication of trends in pricing. It is well known that some domestic automobiles are sold below the "sticker," or suggested price, and that during 1981-84, there were short-term, direct customer rebates and below market-rate financing. However, certain models, such as the newly designed Chevrolet Corvette and Pontiac Fiero, have commanded prices higher than suggested retail, and other models that were in high demand, but limited supply, have been sold at the suggested price.

Manufacturers' suggested retail prices for 9 popular domestic autos and 7 Japanese autos are shown in table 4, which compares retail prices as of February 1, 1985, with those of April 1, 1981, the date the original Japanese import restraint level became effective. Although the suggested retail prices of domestic subcompacts (Chevette, Escort, and Turismo or Horizon) increased from 5.8 percent to 8.5 percent, prices of larger domestic autos such as the Ford LTD, Chevrolet Impala, and Dodge 600 increased from 30.1 to 35.0 percent. Increases in the retail prices of compact/intermediate models ranged from 11.8 to 19.3 percent.

U.S. retail prices of all of the Japanese models shown in table 4 increased by at least 17 percent. The smaller Japanese models, such as the Honda Civic, Nissan Sentra, and Toyota Corolla increased by approximately 21 percent, and the prices of the more luxurious models (Toyota Cressida and Nissan Maxima) rose by an average of 33 percent during April 1981-February 1985.

Most Japanese autos are currently selling for the suggested retail price, and in many sections of the United States they are selling for more than sticker price. Imports from Japan consist primarily of the more expensive models, and dealers frequently add on additional optional equipment, along with extra dealer charges (additional dealer profit or markup). The popular Honda Civic CRX, which lists for \$6,773, may cost customers of some U.S. dealerships as much as \$9,000. 1/ Additional dealer markups on a Nissan 300 ZX have been found to cost the purchasers \$1,000 in Houston and \$3,000 in New York City. 2/

In the Washington, DC, area, a Toyota Corolla had a factory suggested retail price of \$9,505, but a total cost of \$11,955, with the difference accounted for by "preparation and added dealer profit" of \$2,450. 3/ It is

1/ Can Detroit Live Without Quotas?, "Fortune", June 25, 1984, p. 20.

2/ Anne McGrath, "Import Quotas: The Honda Dealer's Best Friend," Forbes, Dec. 5, 1983, p. 42.

3/ "Shopping for a Car: A Lesson in Quotas," Washington Post, Nov. 20, 1983.

Table 4.—Manufacturers' suggested retail prices of selected U.S. and Japanese automobiles, April 1981-February 1985 1/

Company, model, and options 2/	April 1, 1981		February 1, 1985		Percent change in optionally equipped model
	Base model 3/	Option-ally equipped model 3/	Base model 3/	Option-ally equipped model 3/	
General Motors:					
Chevette CS, 2 door HB (PB, RWD, TG)——	\$5,155	\$5,405	\$5,470	5,804	+7.4
Citation, 4 door HB (PB, RWD, TG, AT)——	6,404	7,014	7,232	8,042	+14.7
Impala 4 door (AC)——	7,322	8,037	9,709	10,459	+30.1
Ford:					
Escort L 2 door HB (PB, RWD, TG)——	5,556	5,857	5,876	6,196	+5.8
Tempo GL 4 door (RWD, AT, TG) 4/——	6,421	6,953	7,160	7,773	+11.8
LTD Crown Victoria, 4 door (RWD, TG, ILG, AC)——	8,519	10,102	11,627	13,642	+35.0
Chrysler:					
Plymouth Turismo, 2 door HB (RWD)——	5,938	6,188	6,584	6,716	+8.5
Reliant, 4 door (RWD, TG, R, AT)——	5,980	6,680	7,039	7,969	+19.3
Dodge 600, 4 door (RWD, AC) 5/——	6,672	7,502	9,081	9,986	+33.1
Toyota:					
Corolla, Deluxe, 4 door (R)——	5,688	5,793	6,938	7,163	+23.6
Cressida, 4 door——	11,599	11,599	15,690	15,690	+35.3
Nissan (Datsun):					
Sentra Deluxe 2 door 6/——	5,369	5,494	6,649	6,649	+21.0
Stanza GL, 4 door (AT) 6/——	6,839	7,749	9,549	10,049	+29.7
Maxima, 4 door——	10,379	10,379	13,499	13,499	+30.1
Honda:					
Civic 1300, 2 door HB (R)——	4,599	4,694	5,399	5,495	+17.1
Accord, 4 door (R, AT)——	7,645	7,950	8,845	9,338	+17.5

1/ Suggested retail prices do not include any dealer incentives, below-market financing, or rebates offered by manufacturers or importers.

2/ The following codes apply: PB = power brakes; RWD = rear window defroster; TG = tinted glass; HB = hatchback; AT = automatic transmission; AC = air-conditioning; R = radio; ILG = interior luxury group.

3/ Base models are 2-door or 4-door hatchback and 4-door or 4-door hatchback models. Optionally equipped models are base models that have been equipped with the options listed in parenthesis.

4/ Tempo replaced the Fairmont Futura.

5/ Dodge 600 replaced the Diplomat.

6/ Sentra replaced the 210; Stanza replaced the 510.

Source: Compiled from data supplied by U.S. manufacturers, Japanese importers, and Automotive News.

Note.—Some 1981, 1982, and 1983 models have been discontinued; these models have been replaced by comparable models. In addition, some equipment that was optional on prior models is now included in the base price, making price comparisons of prior-year models difficult.

not unusual for every Japanese auto on the dealer's showroom floor to have "paint shield," or wax, costing over \$150, fabric shield for the car's interior for \$75, and rustproofing for more than \$200. 1/

Pricing strategies

As demand for U.S.-produced autos shifted from small, fuel-efficient models in 1980-82 to larger, more luxurious models in 1983-84, the pricing reflected this shift. U.S. consumers opted for the larger models in 1983-84 owing to the decline in the price of gasoline (in both real and constant dollars) and the U.S. economic recovery that started in late 1982 and continued throughout 1984. 2/ As discussed previously, the suggested retail prices of domestic subcompacts have increased very little since 1981, and the prices of larger U.S. models have increased significantly.

There are 3 apparent principal reasons for the small increases in subcompact models: (1) If the Japanese discontinue the export restraint level in 1985, there will be increased price competition in the lower priced models, and domestic producers do not want to lower retail prices 3/; (2) domestic producers want to retain or increase their share of the first-time buyers segment and can accomplish this by keeping entry-level prices low 4/ and; (3) General Motors and Ford must sell a certain number of small, highly fuel efficient small cars in order to avoid paying a penalty for not meeting Corporate Average Fuel Economy (CAFE) standards. 5/ (See p. 38 for further explanation). The substantial increases in prices of larger models are a result of an increase in consumer demand for these models. 6/ It is well known that auto manufacturers make more profit on their larger models, 7/ and it appears that as the demand for larger domestic autos increased prices increased as well.

The pricing strategy of the Japanese during 1981-84 was to export more expensive models and load the vehicles with more options. Since these models carry a higher margin, both the manufacturers and the dealers make a better profit. It is believed that the Japanese could charge even more for their autos because of the very low inventory carried by the dealers. 8/ By not raising prices, the Japanese are most likely foregoing higher short term profits in favor of maintaining a market presence. If the Japanese raised

1/ "Import quotas...", op. cit., p. 43.

2/ For complete discussion concerning shift in demand, see section regarding model mix changes.

3/ "Modest Rises Predicted for '85 Car Prices," Washington Post, Aug. 3, 1984.

4/ Thomas O'Grady, "Import Restraints Lead to Strategic Pricing by All," Automotive Industries, May, 1984, p. 54.

5/ Joseph Bohn, "A Tale of Auto Prices," Automotive News, Dec. 3, 1984, p. 20.

6/ Amal Nag, "Auto Makers Are Quietly Raising Prices Higher than First Promised," Wall Street Journal, Jan. 8, 1985.

7/ This applies to European and Japanese producers as well as U.S. producers.

8/ Thomas O'Grady, op. cit.

prices, their vehicles may be excluded from consideration by many customers who would wait for availability. 1/

Product mix changes

The mix of passenger cars available in the United States over the course of the VRA has changed in several respects. However, the impetus behind these product mix changes differs for U.S. and Japanese manufacturers. Therefore, these two segments of the American automobile market will be examined separately below.

Product mix of U.S. producers.--The North American automobile industry produces the widest range of passenger cars in the world in terms of vehicle size. Of the five basic classes composing the U.S.-built car market mix, intermediate class automobiles have held the largest share over the past 10 years except for 1982. 2/ As late as 1977, intermediate and full-size cars accounted for 32.5 and 24.9 percent, respectively, of the sales mix. 3/ At that time, despite the previous oil shock of 1973-74, subcompacts represented only 10.5 percent of the U.S. automobile sales mix. 4/ However, between 1978 and 1980, sales of domestically built subcompacts surged from 13.0 percent of the total mix to 25.4 percent. 5/ Correspondingly, the intermediate segment fell to 27.9 percent while full-size units dropped to 16.3 percent. 6/

In terms of the production mix of U.S. auto companies, the doubling of the subcompact segment preceded the market by 1 year. Between 1977 and 1978, U.S. subcompact production increased from 762,000 to 1.5 million units, or by 94.5 percent. 7/ However, this shift was due not so much to concern over a possible second fuel shortage as it was in response to the Energy Policy and Conservation Act of 1974. This act created CAFE standards for the auto industry that set fuel economy requirements in average miles per gallon for domestic and imported new car fleets. Under the act, companies could be fined \$5 per one-tenth of a mile per gallon per vehicle for failure to meet the standards. The CAFE law set a standard of 20 miles per gallon by 1980, at a time when domestic fleet averages were about 12 or 13 miles per gallon. 8/ During 1977-78, larger cars grew in popularity again. Given the large investments the industry had made to meet the approaching CAFE standards, U.S. carmakers increased the subcompact segment of the production mix from 8.4 percent in 1977 to 16.2 percent the following year in an attempt to increase subcompact sales. 9/

1/ Ibid.

2/ Ward's Automotive Yearbook, various editions. The five classes are subcompact, compact, intermediate, full-size, and luxury.

3/ Ibid.

4/ Ibid.

5/ Ward's Automotive Yearbook, various editions.

6/ Ibid.

7/ Data submitted in response to questionnaires of the U.S. International Trade Commission.

8/ Francis Gawronski, "Bidwell looks at a changing industry," Automotive News, Oct. 5, 1981.

9/ Data submitted in response to United States International Trade Commission questionnaires.

When the Iranian Revolution caused oil shortages in 1979, the market shifted sharply towards small cars, particularly subcompacts, thus rendering compliance with CAFE standards a moot point. More importantly, the second energy crisis abruptly switched the subcompact market from a supply-push to a demand-pull orientation. U.S. automakers lacked the small car capacity to fully meet this surge in consumer demand. Therefore, consumers found Japanese cars to be an alternative source of fuel-efficient automobiles. 1/

During the course of the VRA (i.e., since 1981), the shares of U.S. sales represented by the various market classes have shifted substantially. Following the establishment of voluntary limits on Japanese car exports, the subcompact segment of the domestic car market mix increased from 26.8 percent in 1981 to a record high of 30.2 percent in 1982 before declining to 29.8 percent in 1983. 2/ The compact segment, after having remained relatively steady at about 25 percent since 1977, dropped from 24.5 percent in 1981 to 19.2 percent in 1982 and 13.6 percent by 1983. 3/ Intermediate class sales of U.S.-built cars had leveled out at 28 percent of the mix between 1979 and 1982. 4/ Responding to lower fuel prices, intermediates took 33.2 percent of the mix in 1983. 5/ Full-size cars have remained well below their historical levels but recovered slightly from a low of 15.3 percent in 1981 to 17.1 percent in 1983. These market shifts are summarized in figure 9.

The extent to which the Voluntary Restraint Agreement has affected the U.S. auto companies' product mix is uncertain. Fuel prices and consumer demand spurred the drive towards smaller cars more than any other factors. Following the leveling out of gasoline prices and the easing of consumer concerns in that area, the Federally mandated CAFE standards appear to have become the primary force behind any small car supply shifts. GM and Ford have repeatedly cited increased demand for larger cars as the reason behind their recent failures in meeting CAFE standards; Chrysler has suggested a gasoline tax as a way to maintain consumer interest in small cars through higher fuel prices. 6/ Nevertheless, inasmuch as CAFE standards have increased pressures for U.S. auto companies to build smaller cars, the VRA has probably limited the extent to which Japanese manufacturers have been able to dominate the subcompact market. In this regard, the VRA has almost certainly helped U.S. car makers to close in on the CAFE requirements. CAFE standards and U.S. auto company performances in meeting those standards are summarized in the following tabulation sourced from data published in Automotive News (in miles per gallon):

1/ "Auto Situation: 1980," Subcommittee on Trade, Committee on Ways and Means, U.S. House of Representatives, June 6, 1980.

2/ Ward's Automotive Yearbook, various editions.

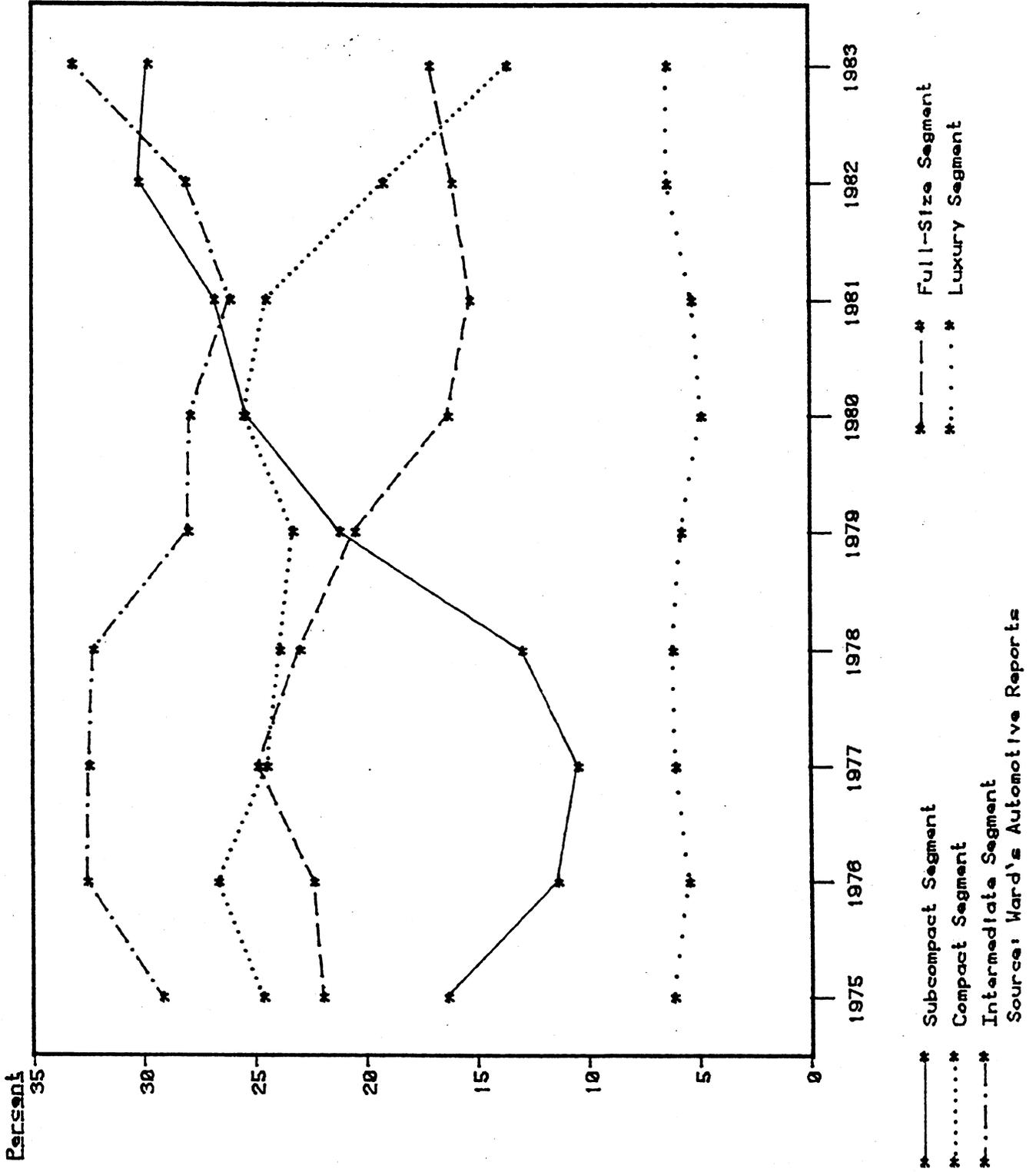
3/ Ibid.

4/ Ibid.

5/ Ibid.

6/ Helen Kahn, "Makers Face No Penalties For Missing CAFE Goals," Automotive News, July 25, 1983; Jake Kelderman, "Ford, GM Fail on '83 CAFE," Automotive News, July 9, 1984; Helen Kahn, "GM and Ford to Miss 1985 CAFE Figure," Automotive News, Jan. 7, 1985.

Figure 9.—Automobiles: U.S. retail sales of domestic vehicles, by market segments, 1975-1983.



Source: Ward's Automotive Reports

Item	1981	1982	1983	1984	1985
CAFE-required standard-----	22.0	24.0	26.0	27.0	27.5
General Motors-----	23.2	24.3	23.5	<u>1/</u> 24.8	<u>1/</u> 25.1
Ford Motor-----	23.3	24.5	23.8	<u>1/</u> 25.3	<u>1/</u> 25.9
Chrysler-----	26.4	27.0	27.0	<u>1/</u> 27.1	<u>2/</u>
American Motors-----	22.5	24.0	33.5	<u>1/</u> 35.5	<u>2/</u>

1/ Estimated.

2/ Not available.

Product mix of Japanese producers.---Japanese cars sold in the U.S. market fall completely within the small car segment. Therefore, the Japanese product mix concerns subcompact and compact cars in addition to the high-performance sports cars and expensive small cars of the luxury class. In considering product mix shifts among Japanese manufacturers, this section examines the four Japanese auto companies selling in all three segments in the United States: Toyota, Nissan, Honda, and Mazda. 1/

Since 1980, the Japanese product mix for passenger car sales in the U.S. has shifted away from the subcompact segment. Throughout the VRA period, the subcompact share declined steadily from a preagreement level of 66.8 percent in 1980 to 48.4 percent in 1984 2/ (fig. 10). During the same period, both the compact and luxury classes expanded. The compact share increased from 20.9 percent in 1980 to 33.4 percent in 1984. 3/ The largest increases in this segment occurred in 1983 and 1984, when compacts achieved 27.4- and 33.4-percent shares, respectively, from 20.9 percent in 1982. 4/ Honda Accords (produced both in Ohio and in Japan), led this drive, accounting for 2.2 percent of the 1983 increase and 5.4 percent of the 1984 rise. 5/ Luxury cars, including high-performance sports cars, increased from 12.3 percent in 1980 to an 18.2-percent share of the mix in 1984. 6/ The product mix distribution during 1980-84 is shown in figure 11.

1/ Classifications of these companies' models: Subcompact - Starlet, Tercel, Corolla, Celica, 210 series, 310 series, Sentra, 200SX, Civic, Civic CRX, GLC.

Compact - Corona, Camry, 510 series, Stanza, Accord, 626. Luxury - Cressida, 300ZX, 280ZX, Maxima, Celica Supra, Prelude, RX7.

2/ Based upon data from Automotive News Market Data Book, various issues, and Ward's Automotive Reports, Jan. 7, 1985.

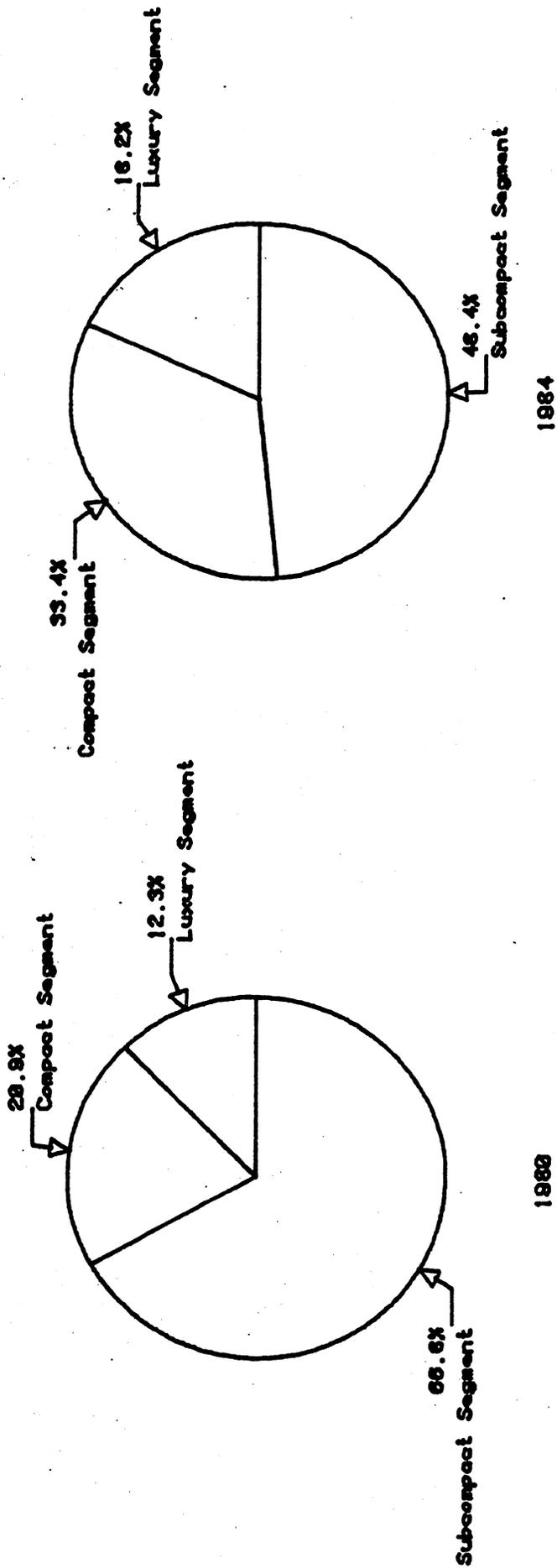
3/ Data based upon Automotive News Market Data Book, various issues, and Ward's Automotive Reports, Jan. 7, 1985.

4/ Ibid.

5/ Ibid.

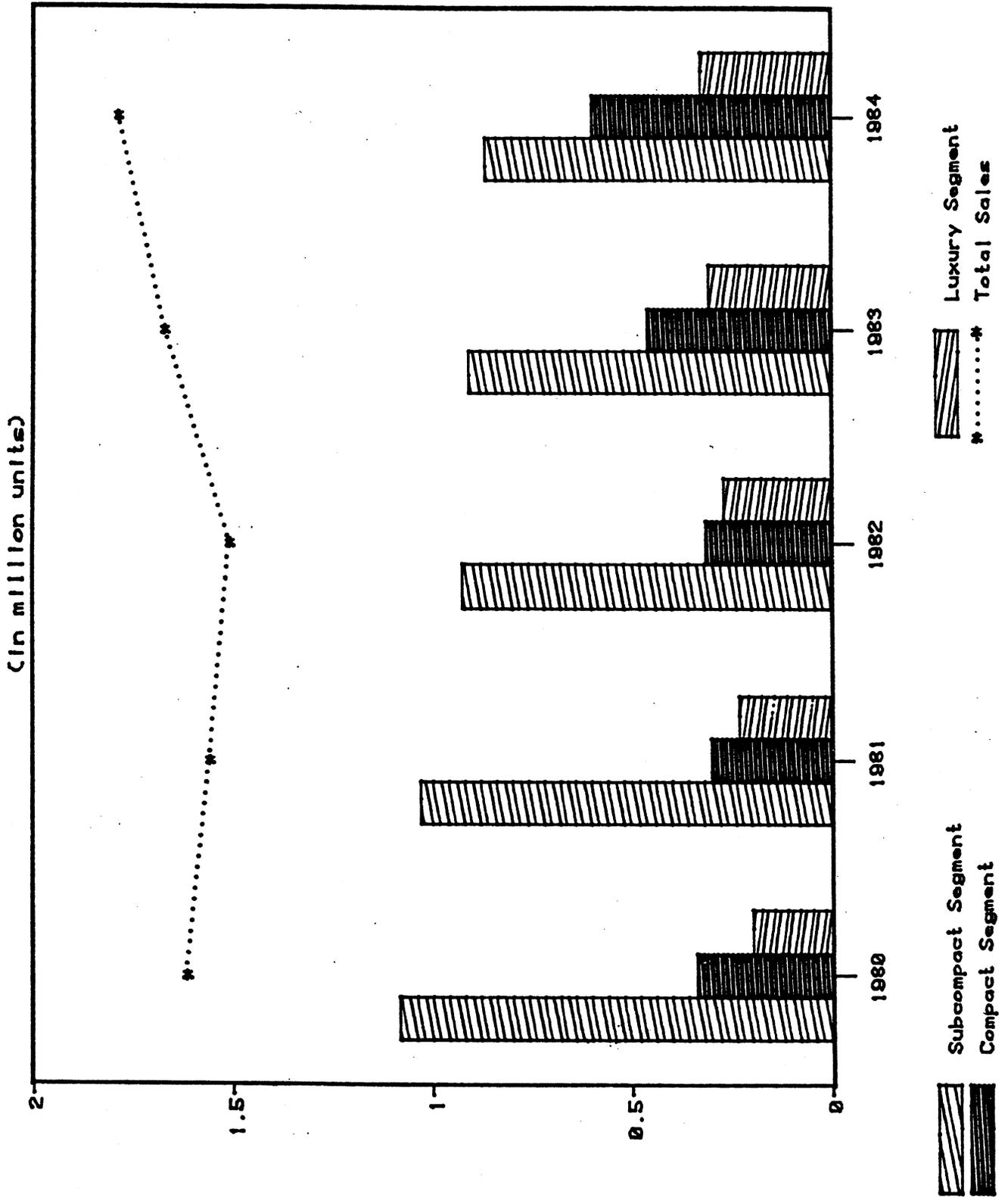
6/ Ibid.

Figure 10.-- Automobiles: U.S. sales mix of selected Japanese models, 1980 and 1984.



Source: Automotive News.

Figure 11.-- Automobiles: product mix distribution of selected Japanese models, 1980-84.



The largest shift toward luxury models occurred in 1982. During that year, Toyota increased the share of its car sales above \$10,000 to 13 percent from 7 percent, and Nissan pushed its share over \$10,000 sales to 24 from 18 percent. 1/

A major factor behind this upscale swing was summarized by a Nissan board member, Shiro Ozawa: "It is getting harder to make money in small cars. Japanese companies must produce higher-priced, more luxurious cars." 2/ In this regard, compact models such as the Toyota Camry, which replaced the slow selling Corona and the recently redesigned Mazda 626, are considered innovative entries designed to increase Japanese shares of this segment. 3/ Since the VRA has limited the total number of Japanese car exports to the United States, a certain portion of the decline in subcompacts has been due to this shifting of sales towards the more expensive compact and luxury segments. In light of this, the restraints most likely have had the effect of preventing the Japanese from maintaining their high levels of subcompact sales while making inroads into the higher end compact and luxury markets. In other words, the VRA has forced the Japanese into making a tradeoff between subcompact sales and sales in other segments of the American market.

Economic Effects of the VRA

If the VRA had not been in place during the past 3 years, it is most likely that sales of imported passenger cars from Japan would have reached higher levels and domestic sales and output would have been somewhat lower. However, quantifying the effects of the import restrictions on imports and the U.S. industry is difficult. The approach taken in this paper was to estimate the prices and sales of Japanese imports, the prices and sales of U.S. producers, and levels of other industry variables that would have prevailed with no restrictions. These estimates were then compared with actual values of the variables to measure the impact of the VRA, particularly the costs to consumers and the benefits to U.S. producers during 1981-84. The major assumptions that underlie the estimates are set forth in the body of this section. The details of the methodology are described in app. B.

Sales of Japanese imports.--Sales of Japanese passenger cars in the United States increased rapidly throughout the 1970's, from less than 400,000 units at the beginning of the decade to nearly 1.9 million units in 1980. The continuing growth in annual sales of these small imported autos during this period was due to their relatively low price, their growing reputation for quality and reliability, and their superior fuel efficiency. Their fuel efficiency became especially important in the late 1970's when the price of gasoline climbed from an average of 53 cents per gallon in 1978 to 88 cents in 1979 as a result of the oil shock stemming from the Iranian Revolution. U.S. sales of Japanese cars increased by over 30 percent, from a 1978 level of

1/ Alan Binder, "Foreign Carmakers Adopt American Soil and Style," Ward's Automotive Yearbook, 1983, p. 139.

2/ Lawrence Minard, "Saab, Mercedes, Volvo, BMW, Jaguar, Watch Out!," "Forbes. Sept. 10, 1984, p. 41.

3/ Amal Nag and Robert L. Simison, "With Three New Cars, the Japanese Outdo U.S., Move Into New Market," Wall Street Journal, May 17, 1983.

about 1.4 million units to nearly 1.9 million in 1979. As the price of gas rose further in 1980, sales of these fuel-efficient cars continued to increase. Between 1976 and 1980, the Japanese share of the U.S. auto market more than doubled, from 9.3 to 20.9 percent.

Although the Japanese market share would probably have continued to increase if there had been no VRA, it is unlikely that the rapid increase that occurred during the late 1970's would have continued. For one thing, the price of gasoline has declined significantly in real terms during the past 3 years, and this has led to a reduced demand for small cars. From 1976 through 1978, their market share declined as gas prices edged downward. The demand for small cars recovered between 1979 and 1981 as a result of the rapid escalation in gasoline prices. By 1981, small cars accounted for more than one-half of all U.S. sales, but as fuel prices declined during the next three years, the demand for small cars fell significantly. In 1983, such cars accounted for only 43 percent of total U.S. sales, and it is likely that this share has declined further in 1984 as the price of gasoline has continued to decrease. Since most Japanese imports are compacts or subcompacts, it is likely that the growth in their sales would have slowed significantly during 1981-84 without the import restriction.

In addition to the effects of falling gasoline prices on the demand for small cars, the U.S. auto industry has introduced many new models during the early 1980's that are more competitive with Japanese cars than previous domestic products. During the late 1970's, the domestic industry offered only a limited variety of subcompact cars. Although some of these models, such as the Ford Pinto, the Chevrolet Chevette, the Dodge Omni, and the Plymouth Horizon, competed with Japanese autos, some were somewhat outdated in design and probably did not appeal to the buyers who were seeking a highly fuel-efficient subcompact with front wheel drive. Before 1980, the Omni, Horizon, and Volkswagen Rabbit were the only small domestic autos that offered front-wheel drive, but beginning with the General Motors X cars (Citation, Phoenix, Omega, and Skylark) that were introduced early in 1979 and the Chrysler K cars (Reliant and Aries) that became available late in 1980, the domestic industry has brought forth many new fuel-efficient, front-wheel-drive autos such as the Ford Escort, the Mercury Lynx, the AMC Alliance/Encore, and the General Motors J cars that have been designed to compete with popular Japanese models. In addition, most larger models were downsized and significantly redesigned. This increased domestic competition would probably have moderated the growth in demand for Japanese cars.

Although the sharp increases in sales of Japanese cars that were recorded in the 1970's probably would not have continued, it is still likely that growth would have occurred. On the basis of long-term trends, the Commission staff has estimated that the Japanese share of the U.S. market would have increased steadily from about 21 percent in 1980 to approximately 28 percent in 1984 with no import restrictions. Because of the decline in total demand for U.S. autos that resulted from the recession in 1981-82, it is unlikely that actual sales of Japanese cars would have increased significantly in those years absent the VRA. It is estimated that sales of Japanese cars would only have been 103,000 units higher than their actual level in 1981 and only 195,000 units higher in 1982, with no restrictions (table 5). However, as the U.S. demand for autos recovered in 1983-84, it is likely that imports of Japanese autos would have been significantly higher in the absence of the

restrictions. By 1984, they most likely would have climbed to over 2.9 million units--an amount that is nearly 1 million higher than their actual level.

Table 5.--Effects of the voluntary restraint agreements: Actual sales of new domestic autos, Japanese autos, all autos, and Japanese prices in the United States and estimated levels that would have prevailed in the absence of the VRA, 1980-84

Item	1980	1981	1982	1983	1984
Sales of Japanese autos (in thousands of units)	Actual : 1,882	1,845	1,774	1,861	2,950
	Estimated : -	1,948	1,969	2,435	2,948
	Difference :	-103	-195	-574	-998
	% difference :	-5.6	-11.0	-30.8	-51.2
Sales of domestic autos (in thousands of units)	Actual : 6,578	6,203	5,757	6,795	7,960
	Estimated : -	6,128	5,629	6,436	7,342
	Difference :	+75	128	+359	+618
	% difference :	+1.2	+2.2	+5.3	+7.8
Total sales of autos ^{1/} (in thousands of units)	Actual : 8,975	8,529	7,978	9,181	10,400
	Estimated : -	8,551	8,035	9,372	10,743
	Difference :	-22	-57	-191	-343
	% difference :	-0.3	-0.7	-2.1	-3.3
Prices of Japanese autos (in dollars per unit)	Actual : \$6,709	\$7,292	\$7,539	\$8,317	\$9,300
	Estimated : -	7,107	7,180	7,486	7,962
	Difference :	+185	+359	+831	+1,338
	% difference :	+2.5	+4.8	+10.0	+14.4

^{1/} Includes sales of autos from Japan and all other import sources.

Source: Compiled from official statistics of the U.S. Department of Commerce, Automotive News, and from estimates of the U.S. International Trade Commission.

Prices of Japanese autos.--By restricting the supply of imported autos in the face of a growing demand, the VRA has probably resulted in higher prices for U.S. consumers. As shown in table 5, the average transaction price for Japanese autos increased from \$6,709 in 1980 to \$9,300 in 1984, or by 39-percent over the 4 year period. The estimated effect of the VRA on the

average price of Japanese autos was developed by taking into account the difference between actual sales of Japanese autos and sales levels that would have occurred without the VRA. ^{1/} The results show that the price effects of the VRA have increased during the past 3 years as the restrictive effect of the VRA has intensified. During 1981, the VRA added only \$185 to the price of a Japanese auto, but by 1982, it was adding more than \$350. In 1983, the costs of these restrictions increased to over \$800, and in 1984, they exceeded \$1,300.

Other evidence indicates that the price of imports from Japan would have been significantly lower during 1984 if the restrictions had not been in effect. DRI has recently estimated minimum retail prices of Japanese autos in the United States that would be required to guarantee adequate returns to dealers, marketing subsidiaries of Japanese manufacturers, and the manufacturers themselves. In arriving at these minimum prices, DRI developed estimates of the unit costs (material, labor, capital, and overhead costs incurred in Japanese manufacturing and assembly operations) along with shipping charges, tariffs, and markups by Japanese manufacturers, their U.S. marketing subsidiaries, and U.S. dealers. A comparison of these minimum prices with actual retail list prices of representative autos indicates that the potential for price reductions is substantial. The estimates for 1984, which are presented in the following tabulation, show that the prices of Japanese subcompacts could be lowered by as much as 21 percent, the price of compacts by as much as 29 percent, and prices of sporty cars and intermediates (which account for only a small percentage of U.S. sales) by as much as 39 and 43 percent, respectively. The data provided by DRI in the following tabulation indicate that average prices of all Japanese autos sold in the United States could have been lowered by as much as 30 percent in 1984 if the VRA had not been in effect.

	<u>Subcompact</u>	<u>Compact</u>	<u>Sport</u>	<u>Intermediate</u>
Potential retail price-----	\$5,032	\$5,874	\$6,140	\$6,512
Suggested retail price ^{1/} -----	\$6,349	\$8,299	\$9,995	\$11,399
Price reduction potential (percent)---	20	29	39	43

^{1/} The subcompact is the Sentra, deluxe 2-door sedan; the compact is the Stanza, XE 2-door Hatchback; the sporty car is the Prelude, 2-door coupe; and the intermediate is the Maxima sedan.

^{1/} It was assumed that the price elasticity of demand for Japanese imports is -2. The empirical basis for this assumption is discussed in app. B.

However, if the VRA had been terminated in early 1984, it is unlikely that prices would have declined by an amount this large. The absence of the restriction and the intensified competition among Japanese suppliers would have resulted in reduced prices and increased sales of Japanese autos. However, in attempting to meet the greatly increased demand for these autos, it is likely that the unit costs would have increased because of limitations in their distribution networks in the United States and possible bottlenecks at the manufacturers' levels that would have arisen in the efforts to supply a greatly increased quantity of autos to the U.S. market in a short period of time. As a result, the minimum prices that would have been required to ensure an adequate return to dealers, and Japanese manufacturers and their U.S. subsidiaries, would probably have been somewhat higher than the amounts estimated by DRI. If the demand curve and the supply curve for Japanese autos have identical slopes, the average transaction price would have been about 15 percent lower in 1984 without the VRA. This result is similar to the Commission's staff estimate.

Sales of U.S. autos.—The VRA probably resulted in some increases in sales of U.S. autos during 1981–84. However, it is unlikely that all of the potential buyers of Japanese cars who were discouraged by the quota bought new domestic models. Some probably purchased used cars, and others bought imports from other countries or decided to keep their existing autos. These considerations are reflected in the estimates of the effects of the VRA on domestic sales that are presented in table 5. During 1981, the impact on domestic sales was probably minimal. In 1982, it amounted to slightly over 100,000 units on total sales of 5.8 million units. During 1983, it boosted domestic sales by about 5 percent, and in 1984, it raised domestic sales over 600,000 units, an amount that was about 8 percent higher than the level that would have prevailed without the agreement.

Domestic new car prices and used car prices.—Evidence as to whether the VRA has resulted in higher prices for new domestic autos is mixed. Data published by the U.S. Department of Labor show that prices of domestic autos have not increased as rapidly as the Consumer Price Index (CPI) for all goods during the period since the agreement went into effect. From April–June 1981 through the end of 1984, the CPI for all items rose by approximately 17 percent, but the CPI for autos advanced by only about 12 percent. Therefore, it could be argued that the restrictions on imports have simply diverted additional sales to U.S. producers without any increase in domestic prices.

Although the Bureau of Labor Statistics (BLS) data show that domestic auto prices have not advanced very rapidly during the last few years, there are indications that the price increases would have been even smaller if the import restrictions had not been in effect. During 1983, the auto industry earned record profits of \$6.2 billion, and in 1984, these profits are expected to rise to over \$10 billion. ^{1/} Much of the increase in profits was due to an upturn in demand that was badly needed in this highly cyclical industry.

^{1/} "Big Four on Target for \$10 billion," Automotive News, Nov. 12, 1984, p. 38.

The return on equity was significantly higher than for all manufacturing in 1983, and this differential probably increased in 1984. 1/

Econometric research offers evidence that increased imports have a negative effect on U.S. auto prices. Regression estimates (which are described in app. B) indicate that a 4 percent increase in the import share of the market would result in a 1 percent decline in the domestic price of autos. By combining these estimates with estimates of the import share market that would have resulted in the absence of the VRA, it was possible to determine the effects of the restrictions on the average transaction prices of U.S. autos during 1981-84. The estimates in the following tabulation indicate that the effects were relatively small during 1981 and 1982 when the U.S. market for autos was depressed. However, by 1983, the VRA was adding more than \$400 to the cost of a domestic auto, and by 1984, this amount had increased to over \$600.

	<u>Actual</u> <u>1/</u>	<u>Estimated</u>	<u>Difference</u>
1981-----	\$8,929	\$8,851	\$78
1982-----	9,889	9,719	170
1983-----	10,504	10,078	426
1984-----	10,998	10,329	659

1/ Transaction price data were provided by the U.S. Department of Commerce.

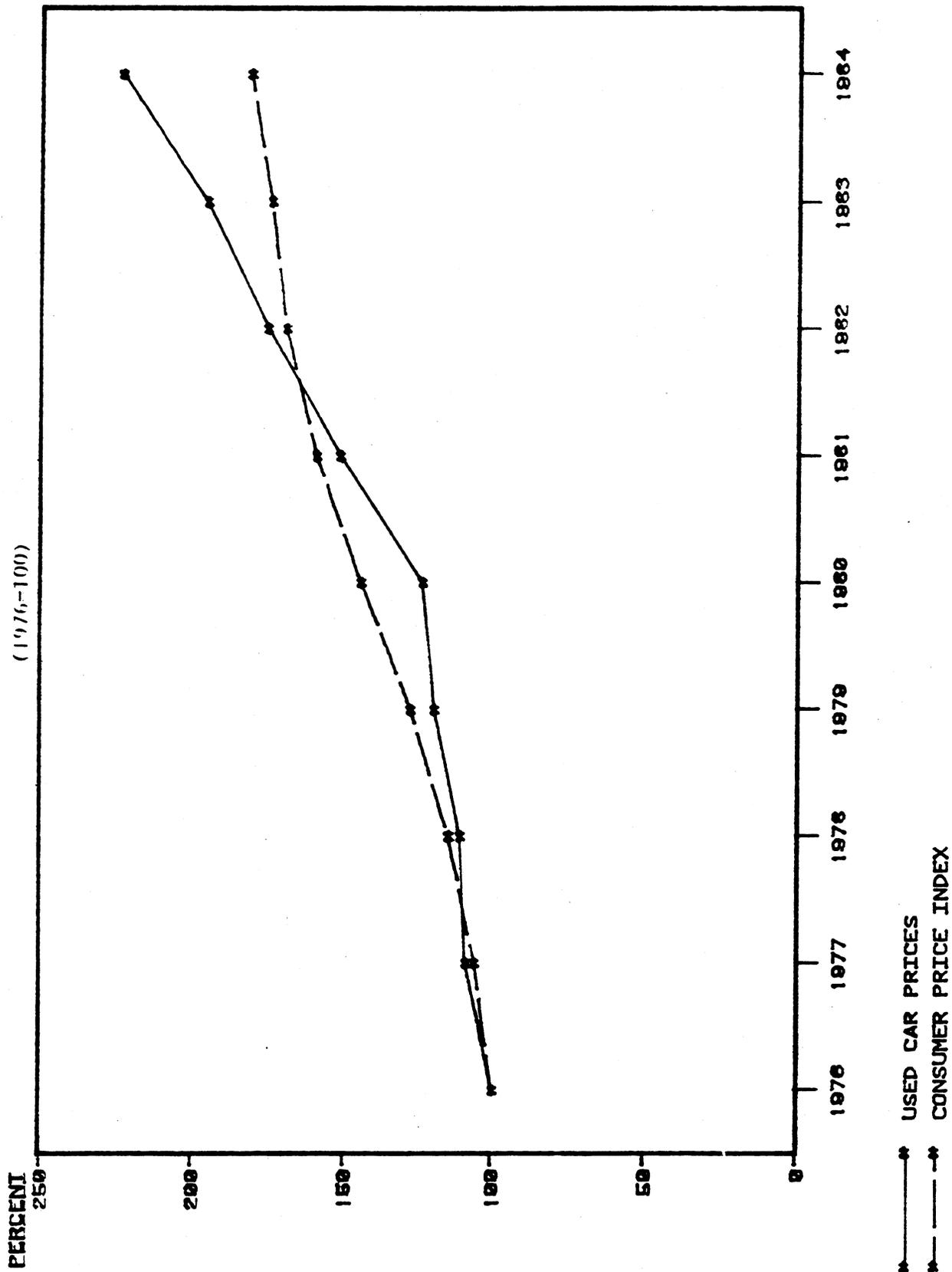
The BLS index of used car prices climbed rapidly during the past 4 years--far outpacing advances in the prices of new autos and the CPI for all items. From 1976 through 1980, the index increased by only 24 percent, but from 1981 through 1984, it nearly doubled, rising by 81 percent during this 4 year period. Though the economic effects of import restrictions on used car prices cannot be readily quantified, the sharp increase in these prices that has occurred since the VRA has been in effect is striking. Although many factors may have contributed to these higher used car prices, 2/ it is likely that they were partly due to an increase in demand on the part of buyers who turned to the used car market because of the reduced availability and higher prices of low-end Japanese autos that resulted from the VRA. It is likely that higher prices of new domestic autos were also a contributing factor.

Consumer costs and employment effects.--Estimates show that costs to consumers that have resulted from the VRA grew substantially from 1981 through 1984. The higher prices on Japanese autos alone raised the consumer costs of the VRA from \$351 million in 1981 to \$1.8 billion in 1983, and by 1984, these costs had reached \$3.3 billion. If the import restrictions resulted in higher prices of new domestic autos, the costs become even more substantial. As

1/ According to Federal Trade Commission data, the return on equity in all motor vehicle production in 1983 was 16.5 percent, compared with 10.1 percent for all manufacturing. Separate data for passenger car production are not available.

2/ For example, a change in demand for larger, more expensive models due to the decline in the price of gasoline and general recovery of the U.S. economy beginning in early 1983.

Figure 12. Automobiles: Indexes of U.S. consumer prices and used car prices, 1976-84.



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

shown in the following tabulation, the combined costs of the restrictions on both imported and domestic autos reached \$4.7 billion in 1983 and then climbed to \$8.5 billion in 1984 (in millions of dollars):

<u>Year</u>	<u>Increased costs of Japanese autos</u>	<u>Increased costs of all autos</u>
1981-----	351	835
1982-----	672	1,650
1983-----	1,785	4,680
1984-----	3,270	8,516

Increases in U.S. sales and output resulting from the VRA have probably resulted in increases in employment in the auto industry during 1981-84. In the first two years, these employment effects were probably small. As shown in the following tabulation, it is estimated that the VRA added only 5,400 jobs to total industry employment in 1981, but by 1984, this number increased to 44,100:

Additional auto industry jobs resulting from VRA

<u>Year</u>	<u>Additional jobs</u>
1981-----	5,400
1982-----	9,100
1983-----	25,600
1984-----	44,100

If the employment gains in the steel industry and in other supplier industries are added to these numbers, the gains in employment would be significantly larger. However, it is believed that estimates of these additional employment effects would not be particularly useful.

Because of the size and importance of the U.S. auto industry in the national economy, the effects of trade restriction on total U.S. employment is particularly difficult to assess. Although the VRA has probably increased the number of jobs in the auto industry and in supplier industries, it is also likely that the restriction has increased the value of the dollar. To the extent that the VRA has limited the supply of U.S. dollars entering the foreign exchange market, it has tended to strengthen the U.S. dollar. As a result it is likely that some jobs have been lost in exporting industries and in other import-competing industries. Although no attempt has been made to measure these job losses in this paper, it is likely that they have tended to cancel out some of the additional jobs created in the auto industry and among its suppliers. For example, a U.S. Department of Labor study prepared in 1982 found that the net employment effect of restrictions on auto imports was essentially zero with jobs gained in the autos and supplying industries matched by job losses in other industries.

Effects of the VRA on the U.S. trade balance with Japan.--The VRA resulted in a substantial reduction in both the volume and value of imports of passenger cars from Japan in 1983 and 1984, as shown in the following tabulation:

<u>Year</u>	<u>Actual</u>		<u>Estimated</u>	
	<u>Quantity</u>	<u>Value</u>	<u>Quantity</u>	<u>Value</u>
	<u>1,000</u> <u>units</u>	<u>Billion</u> <u>dollars</u>	<u>1,000</u> <u>units</u>	<u>Billion</u> <u>dollars</u>
1981-----	1,911	9.5	2,018	9.8
1982-----	1,801	9.6	1,999	10.2
1983-----	1,871	10.8	2,447	12.7
1984-----	1,970	12.5	2,978	16.4

In the absence of the VRA, it is estimated that U.S. imports of Japanese autos would have reached \$12.7 billion in 1983 instead of an actual level of \$10.8 billion; in 1984, such imports would have risen to \$16.4 billion, compared with an actual level of \$12.5 billion. Thus, with no restriction on Japanese imports, it is estimated that the U.S. trade deficit in autos would have been nearly \$2 billion greater in 1983 and almost \$4 billion higher in 1984.

The total U.S. merchandise trade deficit with Japan was \$19.3 billion in 1983 and \$33.9 billion in 1984. It appears that this deficit would have been even greater if the auto restrictions had not been in effect. However, the effects of the VRA on the total trade deficit with Japan are not readily calculable owing to a variety of short run factors. To the extent that the VRA has increased the value of the dollar vis-a-vis the yen, it has resulted in reduced exports to Japan, while leading to increased imports of items other than autos to the United States.

To the degree the restriction has helped stimulate demand in the domestic auto industry and the aggregate U.S. economy, it has encouraged increased imports, both from Japan and other sources. Assuming that the VRA has induced Japanese auto manufacturers to locate in the United States ¹/₁, it has further tended to strengthen the dollar, leading to an even greater decline in exports and increases in imports. Because these indirect effects are not readily calculable, it is not clear whether the net effect of the VRA on the overall U.S. trade balance was positive or negative.

¹/₁ Three major Japanese auto producers, which accounted for more than 74 percent of U.S. imports from Japan, have invested in U.S. auto assembly facilities since 1981. Honda invested approximately \$500 million in U.S. auto production and began assembly of Accord models in Marysville, Ohio in 1981. Toyota invested about \$300 million in a joint venture with General Motors to produce a subcompact model in a GM-owned plant in Fremont, Calif. and began joint production in December 1984. Nissan invested almost \$750 million in an assembly plant in Smyrna, Tenn. which is currently producing lightweight pickup trucks and will begin producing the Sentra models in March 1985. In addition, Mazda has announced that it will assemble a compact model in Flat Rock, Mich. and is targeting initial production for late 1987, and Mitsubishi has confirmed that it is seeking a site for U.S. assembly of autos.

Appendix A

**Letter of December 11, 1984 from the Chairman, Subcommittee on Trade,
House Committee on Ways and Means**

and

The Commission's Reply of January 10, 1985

SAM M. GIBBONS, FLA., CHAIRMAN
SUBCOMMITTEE ON TRADE

DAN ROSTENKOWSKI, ILL., CHAIRMAN
COMMITTEE ON WAYS AND MEANS

JOHN J. SALMON, CHIEF COUNSEL
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BILL ARCHER, TEX.
BILL FRENZEL, MINN.
RICHARD T. SCHULZE, PA.
PHILIP M. CRANE, ILL.

EX OFFICIO:
BARBER S. CONABLE, JR., N.Y.

COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

SUBCOMMITTEE ON TRADE

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P 4:01

December 11, 1984

The Honorable Paula Stern
Chairwoman
U.S. International Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Madam Chairwoman:

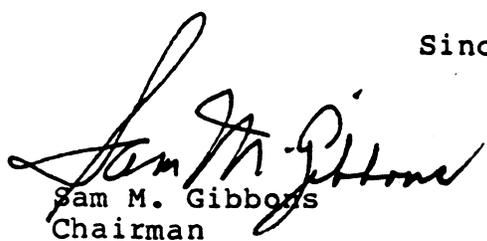
It is our understanding that the ITC has initiated a 332 investigation on the internationalization of the automobile industry and its impact on prices, production, and employment in the U.S. auto industry. Among the factors to be studied is the impact of the voluntary restraint agreement (VRA) with Japan on the U.S. industry.

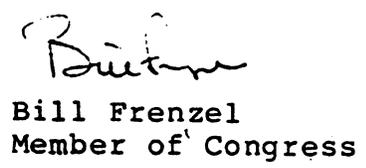
Because we believe the VRA has an enormous impact on consumers in the United States and on producers in both countries, we feel that Congress and the Administration should have access to your findings in order to make an informed decision on any extension of the VRA.

Accordingly, we are requesting that the Commission expedite this investigation and, if possible, be in a position to present preliminary findings to the Subcommittee by early February. We appreciate your cooperation.

If you have any questions, please contact Joanna Shelton on the Subcommittee staff (225-3943).

Sincerely,


Sam M. Gibbons
Chairman


Bill Frenzel
Member of Congress

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CHAIRWOMAN



UNITED STATES INTERNATIONAL TRADE COMMISSION

WASHINGTON, D.C. 20436

January 10, 1985

Honorable Sam M. Gibbons
Chairman, Subcommittee on Trade
Committee on Ways and Means
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is in reply to your letter of December 11, 1984, in which you request the U.S. International Trade Commission to expedite investigation No. 332-188, the Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry, in order to present preliminary findings to the Subcommittee by early February 1985. In particular, you express strong interest in the impact of the voluntary restraint agreement (VRA) with Japan in the U.S. auto industry.

Because of the comprehensive coverage of ongoing investigation No. 332-188, a presentation by early February of the preliminary findings concerning the many factors to be addressed in the study would not be possible. However, the Commission will focus its immediate attention on the impact of the VRA on the U.S. automobile industry, on U.S. employment, and on U.S. consumers and provide its analysis to the Subcommittee by February 8, 1985. The projected release of the current study on investigation No. 332-188 will remain April 26, 1985.

If we can be of further assistance, please contact us.

Sincerely,

A handwritten signature in cursive script that reads "Paula Stern".

Paula Stern
Chairwoman

Appendix B

Methodology Used to Determine the Effects of the VRA

This appendix describes the methods used in estimating the sales and price levels for domestic and Japanese autos that would have prevailed in the absence of the VRA. It also describes the approach used in calculating the consumer cost and employment effects of the VRA.

Estimates of sales of Japanese imports that would have occurred in the absence of the VRA for the years 1981-84 were based on the past trend in the growth of the Japanese share of the U.S. market. This trend was estimated using a logarithmic time trend fitted to Japanese market share data for 1967-80. Although the overall fit of the trend equation was very close (the R^2 value was .97), the equation predicted share values that were lower than actual levels when it was used directly for simulations. Estimates of what the Japanese market share would have been without the VRA were calculated by increasing the 1980 base value for each of the years 1981-84 using the estimated logarithmic time trend. The estimates of sales of Japanese autos were then computed by multiplying the estimated share each year by total U.S. sales of autos in that year.

The effect of the VRA on prices of Japanese autos in each year was estimated as the amount of the price increase that would have been needed to reduce the sales of Japanese imports from the estimated free-market level to the actual level. During 1984, the free-market sales of Japanese autos was estimated to be 2.95 million units, but actual sales totaled only 1.95 million units. Thus, the VRA resulted in a 34-percent decline in sales from their free market level. If the price elasticity of demand for Japanese autos in the United States is -2 , a 17-percent increase in price would have been required to reduce sales of these imports by 34 percent. ^{1/} The actual average transaction price for all Japanese autos sold in the United States in 1984 was \$9,300. This price is 17 percent greater than \$7,962, the price that we estimate would have prevailed absent the VRA.

Estimates of the effects of the import restriction on the demand for Japanese autos are based on the hypothesis that the VRA resulted in increased sales of domestic autos and of imports from sources other than Japan, but that these increases were smaller than the decline in sales of Japanese autos. This assumption is reasonable, since potential buyers of Japanese cars who were discouraged by the quota had the option of either buying a used car or keeping their existing car instead of buying a new domestic make or an import

^{1/} Most evidence indicates that the price elasticity of demand for Japanese autos in the United States is fairly high. A comprehensive econometric study of the auto industry prepared by Eric J. Toder of Charles River Associates in 1978 entitled Trade Policy and the U.S. Automobile Industry developed estimates of relative price elasticity of the demand for imported autos under a variety of model specifications. In most cases these estimated relative price elasticities ranged between -1.5 and -2.5 . Since Japan was the leading source of imports during the period on which these estimates were based, it is reasonable to believe that these estimates were applicable for sales of Japanese imports. In the course of its research, DRI has also found evidence that the price elasticity of demand for Japanese autos in the United States tends to be high. Thus, although the assumed price elasticity of -2 is arbitrary, it is consistent with the results of an abundance of research from other sources.

from Europe. Ideally, these increases in sales could have been calculated from the cross-elasticity of demand for imports. However, good regression estimates of this cross-elasticity are not available. Therefore, the estimates were performed using a methodology developed by Rousslang and Parker. 1/ The actual calculations made use of the estimated and actual sales and prices of Japanese autos and the average transaction price of U.S. autos. Besides assuming that the price elasticity of demand for imports is -2 , the estimates further assumed that the elasticity of supply of Japanese imports is also -2 . Altering this assumption to allow for an infinitely elastic supply curve for Japanese autos results in a slightly larger increase in domestic sales.

The effect of the VRA on domestic prices of autos can be estimated by comparing the actual foreign share of the U.S. market with the estimated share (using the method described above) and then applying the regression results of the Charles Rivers study. 2/ These results show that a 4-percent reduction in the import share of the market results in a 1-percent increase in the domestic price. Thus, the price effects on domestic autos were determined for each year by calculating the percentage reductions in the total import share of the U.S. market that resulted from the VRA and then dividing by 4 to get the percentage increase in domestic prices.

Estimates of the employment effect of the VRA were based on the assumption that an increase in output of 14 autos during a given year results in the creation of one additional job in the auto industry. 3/ It was further assumed that annual increases in production resulting from the VRA were identical to increases in sales.

Separate consumer costs of the VRA were calculated for the price increases on Japanese autos and on U.S. autos. Consumer costs from the increase in prices of Japanese autos were computed by first multiplying the increase in the Japanese price by the quantity sold in each year. An additional cost is then added equal to one-half times the price increase multiplied by the difference between the estimated level of Japanese sales that would have prevailed in a free market and the actual level of these sales. This latter cost represents the losses to consumers who were priced out of the market for Japanese autos as a result of the VRA. A similar calculation is used to determine the consumer cost of any increase in the price of domestic output that resulted from the VRA.

1/ Donald Rousslang and Stephen Parker, "Cross-Price Elasticities of U.S. Import Demand," The Review of Economics and Statistics, August 1984, pp. 518-523.

2/ The log linear regressions that were presented in the Charles River study related a hedonic price index of domestic autos to total costs of U.S. autos and the foreign-share of the U.S. market using annual data from 1960 to 1974. The cost and foreign share variables were both consistently significant at the 99-percent confidence level and the equations were relatively free of auto-correlation. The R^2 value ranged from .58 to .80.

3/ This rule of thumb was described in an August 1983 issue brief that was prepared by the Congressional Research Service of the Library of Congress. Robert Crandall seems to have used a similar approach in his recent study of the effects of the VRA which was published in the summer 1984 issue of The Brookings Review.

